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MENTALLY DEFICIENT CHILDREN

MENTALLY DEFICIENT CHILDREN

THEIR TREATMENT AND TRAINING

BY

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FOURTH EDITION

PHILADELPHIA
P. BLAKISTON'S SON & CO.
1012 WALNUT STREET
1916

General Library System
University of Wisconsin - Madison
728 State Street
Madison, WI 53706-1494
U.S.A.

PRINTED IN ENGLAND.

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OCT 10 1917
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BLD
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1916

TO THE MEMORY OF

THE TRULY ILLUSTRIOUS

EDOUARD SÉGUIN, M.D.

WHO FOR FORTY-TWO YEARS,

BOTH IN THE OLD WORLD AND THE NEW,

PRACTICALLY AND WITH HIS PEN

LABOURED TO IMPROVE THE CONDITION OF

MENTALLY DEFICIENT CHILDREN

BY THE APPLICATION OF

PHYSIOLOGY TO EDUCATION;

THIS BOOK IS INSCRIBED.

" He loved others better than himself."

PREFACE TO FOURTH EDITION

THE Third Edition having some time ago been exhausted, and frequent inquiries for copies continuing, the authors have gladly availed themselves of the opportunity of thoroughly revising this work in the preparation of a new edition. During the last five years increasing public attention has been given to the Mentally Defective Class, culminating in the passage through the Legislature of the Mental Deficiency Acts for England and Wales, and for Scotland, respectively. An Act amending the "Elementary Education (Defective and Epileptic Children) Act" of 1899 has also been passed. Consequent administrative and educational changes have had to be set forth, involving some condensation of matter in the last edition. Much, indeed, has been rearranged and rewritten. Chapter VI., dealing with the mental troubles of youth, has been added, and the illustrations have been rearranged and supplemented by one or two fresh plates. Thanks are due to several professional friends for the loan of blocks, and to Miss Ethel Dixon for kind assistance in preparing the index.

It is hoped that the present edition may enjoy a

share of the favour which has been so liberally accorded to its predecessors; and it is encouraging to its authors that not only a French version of the work has been published,* but that permission to translate it into Japanese has recently been requested.

G. E. S.
W. A. P.

May, 1916.

* "Les Enfants Anormaux au point de vue mental." J. Lebègue et Cie, Libraires-Éditeurs, 46, Rue de la Madeleine, Bruxelles. Traduite par le Docteur Ley. 1904.

PREFACE TO FIRST EDITION

In offering this little Manual to the Medical Profession, and to the increasing number of the Public who take an interest in the special education of mentally deficient children, the author trusts that the experience acquired by the proverbial "quarter-of-a-century's" successive residence in two of the largest Training Institutions for Imbeciles may aid him in setting forth both the salient peculiarities of the class and the ameliorative measures found most useful. He does not profess to bring forward much that is new, but rather to collect and mould into book form various papers published by him during the last twenty years in Medical Journals and the Proceedings of Societies.

In the present volume, the pathology of the subject is only touched on to supply a few practical hints which may be of service to the medical man in his diagnosis, prognosis, and recommendations, when consulted in the case of a mentally feeble or deficient child. Though his standpoint is that of the physician, and not of the teacher, the author hopes that his observations upon special educational methods, based as they are upon physiological principles, may not be

without value to those engaged in the practical work of instruction. For the successful training of the mentally deficient child, the physician and the teacher must go hand in hand; and it will be a satisfaction to the author if in some slight degree this book realizes the aspirations of Séguin, who was both. "Let us physicians," he says (in the course of an address to a New York Medical society), "help to build the programme of physiological education already sketched in the School for Idiots. . . . The demonstration therein given is that the physiological education of the senses is the royal road to the education of the intellect; experience, not memory, the mother of ideas."

G. E. S.

May, 1895.

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MENTALLY DEFICIENT CHILDREN

THEIR TREATMENT AND TRAINING

CHAPTER I

HISTORICAL RETROSPECT

NEARLY eighty years have now passed since serious and systematic efforts were first made to improve the condition of the mentally deficient child. The labours of Séguin, at the Bicêtre Hospital in Paris, gave the first impetus to scientific work having for its object (in the words of Esquirol) " the removal of the mark of the beast from the forehead of the idiot." Some such efforts had indeed been previously made in France by Itard, Voisin, Esquirol, and others; and the experiments of Itard on the boy found running wild in the woods of Aveyron (*le sauvage de l'Aveyron*), of which he published an account in 1801, doubtless contributed to a rational understanding of congenital defects of intellect. In 1837 Séguin, an old pupil of Itard and Esquirol, essayed to instruct an idiot child, and after gaining experience and successful results at the Hospital for Incurables, he was appointed in 1842 to apply his method to the education of the idiot children of the Bicêtre. About the same date,

Dr. Saegert, in Berlin, and Dr. Guggenbühl, in Switzerland, independently took in hand the ameliorative treatment of mentally feeble children. The conspicuous success of the work of Guggenbühl in improving the condition of cretins by removing them from sequestered and shadowed Alpine valleys to the sunshine of the summit of the Abendberg, made a great impression on philanthropists in Europe and America, and demonstrated, as by an object-lesson, the interdependence of physical and mental amelioration. Saegert seems to have laboured somewhat on the lines of the instruction he had been accustomed to give to deaf-mutes, with such adaptations as were necessary to the case of imbecile children. The school he established is still carried on in Berlin, though with the disadvantage of being organised as a department of a lunatic asylum. It was a curious coincidence that almost simultaneously in France, Switzerland, and Germany, independent efforts were inaugurated for the benefit of the mentally defective class; and the year 1842 must be looked upon as an epoch memorable in this matter. Although Séguin is entitled to the credit of priority, he himself modestly avers that "at certain times and eras, the whole race of man as regards the discovery of truth, seems to arrive at once at a certain point, so that it is hard to say who is the discoverer." In 1843, however, the illustrious Voisin publicly recognised the work and merits of Séguin. His prognostications that Séguin would "be entitled by his psychological contributions to take a distinguished place among his contemporaries" were justified by the publication, in 1846, of Séguin's *magnum opus* entitled "Traitement moral, Hygiène et Éducation des Idiots et des autres Enfants Arriérés." This book may indeed be re-

garded as the *magna charta* of the mental emancipation of the imbecile class.*

Defining idiocy as an " infirmity of the nervous system, which has for its effect the abstraction of the whole or part of the organs and the faculties of the child from the normal action of the will," he proceeds to divide all cases into two principal classes, those of profound, and those of superficial idiocy. The basis of the treatment he proposes is almost identical with that described in later works as **physiological education**. Starting with the axiom that " The education of the senses must precede the education of the mind," he argues that the true physiological method of tuition for persons whose nervous system is imperfectly developed is (1) " to exercise the imperfect organs so as to develop their functions," and (2) " to train the functions so as to develop the imperfect organs." Ingenious devices are described whereby the sense-organs may be methodically exercised, and cases are given in minute detail in which such exercises have been adapted to special incapacities.

In Great Britain interest had been aroused by the publication, in 1843, of an account by Dr. William Twining of what he had witnessed at Guggenbühl's Institution on the Abendberg. This, indeed, led to the establishment, in 1846, of a small school for imbeciles at Bath, under the management of the Misses White, subsequently carried on as a benevolent establishment by Miss Heritage. This has now developed into the Magdalen Hospital School, Combe

* For further particulars as to Séguin, the reader is referred to a recent excellent work, *Séguin and his Physiological Method of Education*, by Henry Holman, M.A. London: Sir Isaac Pitman and Co., 1914.

Down, under the management of the Trustees of the Municipal Charities of Bath. It is a matter of archæological interest to note that this Institution owes its establishment in 1891 to an Order of the Charity Commissioners amalgamating the school above referred to with an ancient charity founded in the twelfth century as a leper hospital in connection with the Priory Chapel of St. Mary Magdalen, Bath. It seems probable that as the demand for the accommodation of lepers diminished, lunatics and idiots took their place. Thus the Bath Institution may claim, by right of succession, to be the most ancient foundation in Great Britain for this class of cases, and it is on record that "idiots" were in residence at the Magdalen Hospital early in the eighteenth century. Articles by Mr. Gaskell (afterwards a Lunacy Commissioner) and Dr. Conolly (the enlightened Superintendent of Hanwell Asylum) upon the work of Séguin at the Bicêtre, which appeared in 1847, led to a further practical development in England, and in 1848, Park House, Highgate, the mother institution of Earlswood and of the Eastern Counties Asylum at Colchester, opened its doors for the treatment and training of idiots and imbeciles, Dr. Conolly and Dr. Reed acting as its gratuitous secretaries.

Meanwhile the New World was closely treading upon the heels of the Old in the march of progress in the education of imbeciles. Early efforts had been made in the most progressive of the United States to benefit idiots by training them in connection with special schools for the deaf, and for the blind; but Massachusetts was the first to move in specific provision for this class by appointing "Commissioners to inquire into the condition of

idiots in the Commonwealth, to ascertain their number, and whether anything can be done for their relief." Dr. S. G. Howe, well known as the successful instructor of the blind deaf-mute, Laura Bridgman, was the Chairman of this Commission. Their Report, issued in 1848, with elaborate statistical tables, led to a grant by the Legislature of 2,500 dollars for the establishment of an "experimental school for feeble-minded children"; and about the same time a private school was opened at Barre, Mass., by Dr. H. B. Wilbur, being "designed for the education and management of all children who by reason of mental infirmity are not fit subjects for ordinary school instruction." In 1851 an "experimental school" was started by the State of New York; this subsequently developed into the State Asylum at Syracuse, over which Dr. H. B. Wilbur long and ably presided. The first Report of the Trustees so well sets forth the aims and limitations of training that we are tempted to quote a few lines as follows:

"We do not propose to create or supply faculties absolutely wanting; nor to bring all grades of idiocy to the same standard of development and discipline; nor to make them all capable of sustaining creditably all the relations of a social and moral life; but rather to give to dormant faculties the greatest possible development, and to apply these awakened faculties to a useful purpose under the control of an aroused and disciplined will. At the base of all our efforts lies the principle that, as a rule, none of the faculties are absolutely wanting, but dormant, undeveloped, and imperfect." After the decease of Dr. Wilbur, in 1883, the "Syracuse State Institution for Feeble-minded Children" (as it is now designated) was directed by Dr. J. C. Carson, who resigned in 1912

" after twenty-seven years of diligent and efficient service," and was succeeded by Dr. O. H. Cobb; the Institution now has 626 inmates.

Pennsylvania was the next to establish a " Training School for Feeble-minded Children." Taking up the private enterprise of Mr. J. B. Richards, a State-aided charity was formed, in 1853, which, under its late Superintendent, Dr. Isaac Kerlin, and his assistant and successor, Dr. Martin Barr, has become (at Elwyn) a model village for the feeble-minded.

The State of Ohio provided for her feeble-minded children in 1857; the Institution at Columbus, with its splendid stock-farm, is appointed on a liberal scale, and contains about 1,500 inmates under the care of Dr. Emerick, the successor of Dr. Doren, who for over thirty years wisely directed its development.

Connecticut, Kentucky, and Illinois, were also early in the field, having established State Institutions for the feeble-minded between 1855 and 1865. It is noteworthy that all the early American Schools were organised on strictly educational lines, the imbecile institution being regarded (in the words of Dr. Howe) " as a link in the chain of common schools —the last indeed, but still a necessary link to embrace all the children in the State."

The influence of Dr. Séguin, who, after migrating from Paris to the United States in 1850, was associated with the organisation of several of the early American Institutions, inspired enthusiasm in the educational work, and perhaps a somewhat exaggerated belief in its possibilities. The sanguine views, however, put forth in some of the early Reports gradually sobered down with experience, and in 1872 Dr. Wilbur set forth to his Trustees in clear language the limitations inevitable in cases of original defect.

"The same limitations" (he writes) "hold here as in any other system of education. These depend upon the individual capacities of the pupil. Now and then one of the pupils absolutely passes from the condition of idiocy, and leaves the Institution capable of caring for himself thereafter. These are the exceptions; the rule is otherwise. Ordinarily, the highest aim of the training is to send out the subject of it, at the end of the course, so improved as to be capable of some useful occupation, under intelligent direction." He pointed out that these conditions involve the necessity of supplementary *custodial* institutions, and from this time forward such a consideration seems to have been more or less kept in mind in the provision of State care for the feeble-minded.

In 1898, according to Dr. F. M. Powell's Report to the National Conference of Charities and Correction, there existed twenty-four public Institutions for this class, maintained by nineteen States, and one by the city of New York. From a statement which appeared in an American philanthropic journal, *The Survey*, in 1912 one gathers that in all but eighteen of the States of the Union some public provision of a residential character has now been made for the mentally deficient class, and that about 25,000 in the aggregate are thus accommodated, as compared with 8,492 in 1898. This statement does not include private schools or the special (day) classes established in some of the cities. It would appear, from the *Bulletin* for 1911 of the United States Bureau of Education, that 99 cities have established special classes for mentally defective children, while 220 classes for mentally backward children have also been organised.

In our own country comparatively little progress has been made in recent years in providing out of

public funds Institutions exclusively for the mentally defective class. Those of the Metropolitan Asylums Board, affording accommodation for about 7,000 adult imbeciles and harmless lunatics and 1,500 children, have been in existence for upwards of forty years under the Metropolitan Poor Act of 1867. But elsewhere only sporadic attempts have been made by Guardians of the Poor to form special establishments apart from workhouse accommodation for imbeciles and feeble-minded falling under their charge. The most notable example of a provincial Poor Law Institution is that originally provided by a combination of the Birmingham, Aston, and King's Norton Guardians at Monyhull in 1908; the present establishment, now under "the Greater Birmingham" Board of Guardians, is known as the Monyhull Colony for sane epileptics and feeble-minded persons chargeable to the Board. On an estate of 185 acres 252 adult inmates were originally provided for in several separate houses; extensions are in progress to bring up the accommodation to 12 homes for an aggregate of 504 adults, and 8 homes for 76 epileptic and 270 feeble-minded children, 230 of the latter to be maintained by the Education Committee of Birmingham. A school with 300 places, workshops and laundry, is also to be provided. At the colony 100 beds are required for cases sent under certificate by the Birmingham Committee for the care of the Mentally Defective. Stimulated by the passing of the Mental Deficiency Act, other Poor Law Guardians are also moving in the matter; in Wiltshire an Institution is projected at Devizes for 200 feeble-minded cases, and the Joint Committee of Glamorgan Unions is about to establish a Colony for Feeble-minded on the side of the Drymma Mountain, near Neath. A

combination of West Riding Guardians contemplate the provision of a colony for feeble-minded near Pontefract; and 24 Unions in the North-East of England are contributing to the establishment of an Institution for Feeble-minded, and have purchased Prudhoe Hall, with its estate of 125 acres, in Northumberland, for the purpose.

In connection with County Lunatic Asylums, annexes or special wards for young imbeciles have been provided at Northampton, Wandsworth (Middlesex), Fareham (Hants), Chartham (Kent), Durham, Winwick (Lancs), Stanley Hall (Yorks), Burntwood (Staffs), Rubery Hill (Birmingham), and Hellingly (East Sussex), the aggregate accommodation being about 1,000 beds. It is probable that under the Mental Deficiency Act some rearrangement will be effected. Plans have recently been adopted by the Kent County Council for a special Institution for Defectives near Charing.

In recent years greater charitable enterprise has been shown in the provision of residential establishments for the mentally defective. In addition to the six English voluntary Institutions for Idiots and Imbeciles—at Earlswood, Lancaster, Starcross, Colchester, Knowle, and Bath, which have been doing good work during the last half-century and now accommodate some 2,000 patients—the Sandlebridge Colony of the Lancashire and Cheshire Association for Permanent Care has some 300 residents, children and adults, and the Princess Christian Farm Colony near Tonbridge about 110. A colony recently established by the Notts and Nottingham Association at Hopwell Hall, Derbyshire, accommodates 50 boys, and will also admit 50 girls later on. In Somerset it is hoped shortly to establish a Permanent Home

for the feeble-minded of that county and Bristol, a site of 100 acres having been offered for the purpose by Mr. H. H. Wills. Several establishments (The National Institutions for Persons requiring Care and Control), including those at Sandwell Hall and Stoke Park, have been provided, mainly through the activity of the Rev. H. N. Burden, for about 1,700 mentally defective children and adults. About 600 cases, chiefly older feeble-minded girls, are in small voluntary Industrial Homes founded by benevolent associations in various parts of the country. The first homes of this kind were established by the late Miss Agatha Stacey in 1892 near Birmingham. If we also take into account the 14,000 children attending special schools in England and Wales—shortly, we trust, to be doubled when the Elementary Education (Defective and Epileptic Children) Act comes into full operation—it may be said that there is, in one way or another, provision for about 25,000 mental defectives in England and Wales. In Scotland the Institutions at Larbert and Baldovan provide for 610 inmates,* while many of the imbecile and feeble-minded class are boarded out under supervision. Special schools for defective children also exist in the larger cities with places for upwards of 800 pupils. In Ireland about 120 imbeciles are accommodated at the Stewart Institution, near Dublin. The Board of Control have acquired, under the powers of the Act, premises at Maghull, near Liverpool, for a State Institution for defectives of dangerous or violent propensities.

* Quite recently the Glasgow Association for the Feeble-minded has opened an Institution for Juvenile Female Defectives, and three Institutions for Adult Defectives have been organised.

In the cursory survey of the provision made for mental defectives in Great Britain and in the United States it has proved impracticable satisfactorily to differentiate between that for children and for adults, or definitely to state the grade of mental defect of the inmates of the respective Institutions. For the most part those in America have been designated Institutions for "Feeble-minded," and in Great Britain (until recently) "Asylums for Idiots and Imbeciles," though both have ministered to the wants of similar classes of patients. In America, however, the designation "Feeble-minded" has long been used as a euphemism for all grades of mental defect, including idiots, imbeciles, and the higher type to which the appellation *Mōron* (from μωρός = a foolish person) has of late years been applied by Dr. Goddard of the Vineland Institution, U.S.A. Though the English Education (Defective and Epileptic Children) Act of 1899 recognised a grade of children higher than imbeciles as "mentally defective" so as to require special education, it was not until 1908 that the Royal Commission on the Care and Control of the Feeble-minded gave precision to the term by defining as *feeble-minded* "persons who may be capable of earning a living under favourable circumstances, but are incapable from mental defect existing from birth or from an early age (*a*) of competing on equal terms with their normal fellows; or (*b*) of managing themselves and their affairs with ordinary prudence." It will be seen later that this definition, with certain modifications, has been adopted in the Mental Deficiency Act, 1913.

Under the auspices of the British Medical Association, the Charity Organisation Society, the British Association for the Advancement of Science, the In-

ternational Congress of Hygiene and Demography, and other public bodies, laborious investigations were undertaken nearly thirty years ago, Dr. Francis Warner being the active conductor of the inquiry. A " Report on the Scientific Study of the Mental and Physical Conditions of Childhood; with particular reference to children of defective constitution; and with recommendations as to Education and Training," was issued in 1895 by the Committee, Parkes Museum, Margaret Street, W., based on the examination of 50,000 children seen in 1888-91, and of another 50,000 seen in 1892-94. Whilst 100,027 children passed in groups under the eye of the medical examiner, the number of children individually noted and registered was 18,127, no note being taken of the 81,900 children not presenting obvious physical defect, or not reported by teachers as mentally dull. *Defects in development,** such as abnormalities of cranium, of external ear, of eyelids, of palate, of nasal bones, and of stature, were noticed in 9,777 cases; *abnormal nerve signs*, such as defect in general balance, overacting frontals, corrugation, † defective eye movements, defects of balance of head or hand, finger-twitches and lordosis, together with deafness, defective speech, slow response, etc., were observed in 10,355 cases; *low nutrition* was registered against 3,522 children, who were pale, thin, or delicate; and 7,391 children were, on report of teachers, entered as *mentally dull.* Obvious *eye-defects* were noted in 2,929 cases: evidences of *rickets* (other than cranial) were registered in 244; 811 children were put down as " exceptional," including 2 idiots, 51 imbeciles, 275 children feebly gifted mentally, 19 " mentally exceptional " (moral imbeciles, etc.), 110 epileptics, 5 deaf-mutes, 374 children crippled, maimed, and

* See Plate I., Figs. 1, 2, 3, 4. † See Plate I., Fig. 4.

PLATE I.

FIG. 1.—MISSHAPEN "MOREL" EARS: CONGENITAL IMBECILE.

FIG. 2.—CONGENITAL IMBECILE WITH CONVOLUTED SCALP.

FIG. 3.—EAR SHOWING DARWINIAN TUBERCLE.

FIG. 4.—MONGOLIAN IMBECILE, SHOWING FRONTAL CORRUGATION.

DEFECTS IN DEVELOPMENT.

From *Journal of Psycho-Asthenics*, vol. xi. (by kind permission of Drs. Moorhead Murdoch and A. C. Rogers).

To face page 12.

paralysed. Elaborate tables were given showing the coincidence and co-relation of the various classes of defects; but we must content ourselves with quoting the following estimate from the body of the Report (p. 28) of the co-relation of *binary* defects in development (*two* malformations coincident in the same case) in percentages, thus:

"With mental dulness . . .	45·7
With low nutrition . . .	31·0
With nerve signs . . .	60·3."

This co-relation is higher than for single defects, and it is remarkable that the number of combined defects was much higher in the case of boys than of girls—*i.e.*, in the proportion of 1,240 to 683.* With the exception of "low nutrition," defective conditions are more common in boys than in girls; though when defects occur they are usually of more serious character in the case of the latter.

The general conclusion arrived at with regard to children that require special care and training is that the proportion varies from 1·6 per cent. of the first series of 50,000 cases to 0·88 of the second series of 50,000. Putting both series together, we get, for the 100,000 cases observed, a percentage of 1·261 as requiring special instruction, but it must be remembered that this proportion includes 278 children on the score of physical defects only, without signs of mental dulness.

These figures correspond approximately with the findings of the Royal Commission on the Care and Control of the Feeble-minded, who said, in 1908, that "in England and Wales the number of mentally defective children may be expected to be, in the areas urban and rural, 0·79 per cent. of the number

* 26,287 boys and 23,713 girls were seen in this series of cases.

of children on the school registers, falling as low as 0·28 in a northern colliery district, and rising as high as 1·12 and 1·24 in urban areas."

Dr. Warner's methods are based on the principle that "all expression of nerve states and of mental action is by movements and results of movement,"* and consequently abnormal movements, and even attitudes, may be taken to denote abnormal nerve states or mental action. Correlated with these are frequently found defects in development and in nutrition. Mental dulness is found associated with these physical abnormalities, which may be regarded as, at any rate, warning notes of intellectual defect.

Dr. Warner's actual procedure when inspecting a school is as follows:

"The pupils are observed as they stand in rank, usually a standard, or a smaller section at a time. The inspector, standing in front of each child, in turn holds a shilling for him to look at, so as to fix his eyes and thus obtain a full face, as well as a profile, view of each side, noting the features separately, the cranium, the expression and muscular action of the parts of the face, the eye movements and other points. The trained observer can read off the points in the physiognomy of the individual features and their parts, noting the proportion and form of each.

"Having inspected each child in the line, as described, the children are asked to hold out their hands in front of them, and for a moment the action is done before them. The balance of the hand, spine, shoulders, as well as the arms, hands, and fingers, are noted in each case; finally the observer places his hand on the head, noting the size, form, bosses, etc., and the palate is inspected in each case.

* *Milroy Lectures*, 1892.

"At each of these stages in the inquiry, children presenting deviations from the normal, in any particular, are asked to stand aside. The teachers are then asked to present any exceptional or dull children not picked out by the observer.

"Each selected child is examined individually, and noted on a schedule form* in which the defect or abnormal size is verbally described, and the teacher's report of the child's mental status is added. The name, age, and standard of each child is entered, and the number of children seen in each standard is recorded."

The systematic application of physical observation to large masses of school-children shed much light upon educational problems which had hitherto been regarded too exclusively from the psychological standpoint. The medical inspection of elementary schools now established by law affords opportunity of extending similar observations. It has long been the practice in dealing with imbecile children to note in the Institution Case-books the physical as well as mental abnormalities of each. Séguin more than fifty years ago drew attention to the co-relation of such abnormalities, and in 1883 Dr. Shuttleworth published in the *Liverpool Medico-Chirurgical Journal* a paper on "The Physical Features of Idiocy," tracing the characteristic physical abnormalities coincident with certain special types of mental defect. These consisted mainly of what are termed by Dr. Warner developmental defects, but which it must be remembered are for the most part congenital, and usually of permanent significance. As regards the other conditions noted in Dr. Warner's Report, abnormal nerve signs, low nutrition and mental dulness may

* Recording Card subsequently used. See Report, p. 17.

be of a more or less temporary character, and to a large extent influenced by surroundings, and consequently alterable by training. This consideration, whilst pointing to the utility of such observations, also discloses a possible source of fallacy. A class of children accustomed to physical drill will show fewer " nerve-signs " than a class not so exercised, but it would be wrong to conclude that the *intellectual* standard of the former is necessarily superior to that of the latter. So again " low nutrition" may be the result of ill-feeding, or may be due to constitutional defects. In both cases intellectual activity may be diminished; but the latter condition is more serious than the former. " Mental dulness," as reported by the teacher, is a varying quantity in proportion to the educational standard aimed at in the particular school, and also in view of the pupil's state of health at the time. The prudent medical examiner of children alleged to be defective will not allow himself to be swayed too much by any one class of observations, for it is only by comparing the signs of physical abnormality with those of mental defect, educational attainments being ascertained and weighed in the balance with those of similarly placed normal children of corresponding age, that a right judgment can be arrived at.

A comprehensive statistical inquiry, prompted by the Teachers' Associations of Switzerland, and conducted on pedagogical rather than physiological lines, was instituted by the Swiss Government in 1897, to determine the number of children of school age weak in mind (*faibles d'esprit*), those afflicted with physical infirmities, idiots, deaf-mutes, and blind; and finally those morally unfit for tuition in ordinary schools. The results tally closely with those obtained in Eng-

land by a more purely physical method. Out of 490,252 children of school age in Switzerland, 7,667, or 1·5 per cent., were returned as mentally feeble. This does not include the other categories mentioned above, one of which comprises "idiots," of the number of whom, however, we have no exact information. Altogether 13,155 children were returned as suffering from some degree of mental, physical, or moral infirmity. Of the 7,667 children returned as feeble-minded, it is stated that 567 already receive instruction in special classes, that 411 are in special establishments, that 104 are in orphanages or similar institutions, and do not require special treatment; whilst for 5,585 is demanded individual care in a special class or special institution, leaving 534 for whom this is not deemed necessary, and 466 in which no opinion is given.* In March, 1907, there were recorded 29 resident institutions for feeble-minded children (*Geistes-schwache*), public and private, in Switzerland,† with 1,172 inmates, besides 67 special classes with 1,415 pupils and (in addition) 623 children specially instructed.

Dr. Rudolf Schwab‡ states that as a result of medical inspection in 21 cantons in 1907 of children who had attained school age, the following statistics were obtained: Defective children, 7,695; idiots, 41; slightly feeble-minded, 535; markedly feeble-minded, 144; moral defectives, 43; the rest being physically defective.

* "Resultats du Dénombrement des Enfants faibles d'Esprit en Âge de fréquenter l'École" (1er partie). *Statistique de la Suisse*, 114e livraison, Berne, 1897.

† *Verhandlungen der VI. Schweize. Konferenz für das Idiotenwesen*, p. 32.

‡ Kelynack's *Medical Examination of Schools and Scholars*, p. 414.

CHAPTER II

DEFECTIVE AND EPILEPTIC CHILDREN

PUBLIC attention having been called, largely through the non-official investigations referred to in the previous chapter, to the existence of a considerable class of children incapable of receiving education on conventional lines, the Lord President of Council (as chief of the Education Department) appointed in 1896 a Departmental Committee to inquire into the existing systems for the education of feeble-minded and defective children, "not idiots or imbeciles."

The Committee consisted of the Rev. T. W. Sharpe, C.B., then Her Majesty's Senior Chief Inspector of Schools; of Messrs. Pooley and Newton, of the Education Department; of Mrs. Burgwin and Miss Douglas Townsend; and of Prof. Wm. Smith and Dr. Shuttleworth; Mr. H. W. Orange acting as Secretary. They obtained information about the English Institutions for idiots and imbeciles, and also with regard to the treatment of epileptics at the Maghull Institution. They personally inspected the special classes in Leicester, London, Bradford, Brighton, and Bristol.

In consequence of their Report, an Act of Parliament, known as the "Elementary Education (Defective and Epileptic Children) Act," received the Royal Assent in 1899. This Act, which is permissive only, enables school authorities to obtain grants from public

money towards the education of defective and epileptic children, subject to " such conditions as may be directed by or in pursuance of the minutes of the Education Department in force for the time being."

Under the Regulations issued in 1907, children are not admitted to the special classes till five years of age, but the period of education for such children is extended until the age of sixteen years, and provisions are made for boarding out, when necessary, either in families or in certified schools, and for the school authority supplying, in cases requiring them, guides or conveyance. No requirement is made in the Act of 1899 as to the appointment of Medical Officers either by school authorities or the Education Department, but it is enacted that to bring a child within the purview of the Act " a certificate by a duly qualified practitioner, approved by the Education Department, shall be required in each case." The Education Act of 1907 has, however, since laid an obligation on all school authorities to " provide for the medical inspection of children immediately before, or at the time of, or as soon as possible after, their admission to a public elementary school." Parents may demand the examination of children with a view to their admission to special classes, and re-examination with a view to their transfer to ordinary classes in public elementary schools. Thanks to the Elementary Education (Defective and Epileptic Children) Amendment Act, 1903, the only restriction on boarding-schools is that the school must obtain the approval of the Board of Education.

The Departmental Committee estimated the number of " feeble-minded " children at 1 per cent. of the school population, an estimate which was shown by the investigations of the more recent Royal Com-

mission on the Care and Control of the Feeble-minded to be fairly near the mark when taken over the whole country. This later Commission appointed medical investigators to conduct inquiries in nine selected areas, each with a total population of not less than 150,000. Their Reports showed that " the northerly districts of the Durham County and Hull stand best," and " the large urban areas come last." Thus, in a mining district in Durham County the proportion of mentally defective children to the total registered school population was 0·28, and in Hull and Sculcoates 0·40. The rural areas show a higher percentage, the figures being wonderfully uniform, with the exception of the Lincolnshire Unions, which, though rural, stand with the urban districts. Thus in Wiltshire the figure was 0·47, in Somerset 0·58, and in Nottinghamshire (partly rural) 0·60. With these rural areas stands Stoke-on-Trent, where the medical investigator, Dr. Potts, reported well of the school population, in spite of many drawbacks. In Lincolnshire the figure was 1·10, leading up to the higher figures of 1·12 and 1·24 in Birmingham and Manchester respectively.

Epileptic Children.—The Departmental Committee estimated the number of epileptic children at 1 per 1,000, of whom one-sixth might be classed as severely afflicted. They recommended that epileptic children of normal intellect should be left in ordinary schools if the fits are not frequent, or violent fits do not occur in school, and that teachers be provided with instructions as to the treatment of children known to be epileptic. Feeble-minded epileptics may be received into special classes when the epilepsy is not severe; and for such cases it may be necessary to provide guides or conveyance between the home and the

school. With regard to severe cases, whether mentally feeble or otherwise, treatment in residential homes seems essential, proper classification being provided. Each house of residence should consist of one floor only, and should not contain more than twenty inmates; but there may be an aggregation of such homes round an educational centre, as in the colony plan. It was recommended that school authorities should have power both to provide homes and to contribute to voluntary homes which conform to the conditions laid down.

The result of these recommendations was that the Act of 1899 gave power to school authorities to establish residential schools for epileptics. It did not, however, give power to board out or to establish special day-schools for epileptics. For epileptics the Board of Education certify boarding-schools only.

The Defective and Epileptic Children Act of 1899 showed the number of feeble-minded children in our big towns, and drew public attention to them. It kept many out of mischief and under control for some hours of the day. It was the means of training some feeble-minded persons to be self-supporting, and of educating a number up to the point of contributing materially to their own support. At the Conference of After-care Committees held in London on October 23, 1913, a statement was presented by Sir William Chance, Chairman of the National Association for the Feeble-minded, dealing with the Reports of the After-care Committees of Berkshire, Birmingham, Bolton, Bradford, Brighton, Bristol, Bromley and Beckenham, Leicester, London, Northampton, Oldham, Plymouth, Willesden, and Wolverhampton. The combined statistics from these centres showed that nearly 50 per cent. of those who had attended

special schools for the mentally defective were doing remunerative work, the average wages earned being 8s. 6d. per week for boys, and 6s. 9d. for girls. Such encouraging reports must, however, be qualified by the consideration that in some of these centres a number of the successful cases were children who had been merely dull and backward, and not really defective, and also by the further consideration that these figures refer largely to cases who have only recently left school. The Birmingham After-care Committee, which was the first to be formed, showed repeatedly, after ten years' work, that many of the situations were held for a time only, periods of work often alternating with longer periods of idleness, and that young persons who had just left school were frequently the most successful, and gradually deteriorated as they got further away from the time of training and supervision. This aspect of the subject will, however, be dealt with more fully in the last chapter.

Two drawbacks attending the Act were the fact that no legislative action was taken on the Committee's suggestion that the certificate excluding a child from a special class on account of imbecility should admit such child to an institution for imbecile children, and the fact that no provision was made for "after-care" on leaving school. This latter omission did much to nullify the good effected by special classes, even if it did not do worse. In the opinion of many, education for a few years, without subsequent control, is a dangerous experiment, increasing as it does the capacity, and in the case of some girls the attractiveness, of ill balanced and regulated natures, who ought to be always under supervision. The great disadvantage, however, of the 1899 Act was that it was merely permissive, but by the pro-

visions of the Amending Act of 1914 the provision of suitable special education, by means either of day-schools or residential establishments, will become the duty of all education authorities.

As all investigations demonstrated more and more clearly that the feeble-minded constitute an important section of the community, and that many of them require care during the greater part, if not the whole, of their lives, a Royal Commission was appointed, in September, 1904, to investigate the whole problem. The reference required them " to consider the existing methods of dealing with idiots and epileptics, and with imbecile, feeble-minded, or defective persons not certified under the Lunacy Laws; and in view of the hardship or danger resulting to such persons and the community from insufficient provision for their care, training, and control, to report as to the amendments in the law and other measures which should be adopted in the matter, due regard being had to the expense involved in any such proposals and to the best means of securing economy therein." The original reference was extended in November, 1906, " to inquire into the constitution, jurisdiction, and working of the Commission in Lunacy and of other Lunacy Authorities in England and Wales, and into the expediency of amending the same, or adopting some other system of supervising the care of lunatics and mental defectives; and to report as to any amendments in the law which should, in their opinion, be adopted."

The Commission originally consisted of the Marquis of Bath, Chairman; W. P. Byrne, C.B., of the Home Office; C. E. H. Hobhouse; Dr. Needham, one of the Commissioners in Lunacy; H. D. Greene, K.C.; C. E. H. Chadwyck-Healey, K.C.; the Rev. H. N.

Burden, Manager of Certified Inebriate Reformatories; W. H. Dickinson, at that time Chairman of the National Association for Promoting the Welfare of the Feeble-minded; C. S. Loch, Secretary of the Charity Organisation Society; and Mrs. Hume Pinsent, Chairman of the Birmingham Special Schools Committee. Subsequently Dr. Donkin, one of H.M. Prison Commissioners, and Dr. J. C. Dunlop, Superintendent of Statistics in the Office of the Registrar-General for Scotland, were added to the Commission; and in February, 1905, the Marquis of Bath having resigned, Lord Radnor was appointed Chairman.

The Commission commenced hearing evidence on November 14, 1904, and published its Report on July 31, 1908. The 248 witnesses examined included inspectors and medical officers of special schools, reformatories, prisons, lunatic and idiot asylums, and inebriate homes, and, indeed, " representatives of all classes of persons who could give information on the subject of inquiry." " Full particulars " were also obtained " of the manner in which foreign countries and the colonies are dealing with the questions submitted in the original reference." Visits were paid to " various institutions in which provision is made for the classes of persons named in the reference in England and Wales, Scotland and Ireland, and on the Continent." In addition, five members visited the United States of America, and issued a special Report of their observations. Almost at the outset it was found that " there were no available statistics from which any trustworthy estimate could be made as to the number of persons who might be said to fall within one or other of the categories named in our reference. We decided, therefore, that an expert investigation of the question was indis-

pensable, and having obtained the authority of the Treasury for the expenditure, which was necessarily considerable, we appointed medical investigators to make a thorough inquiry in regard to the number of mentally defective persons (including epileptics) in sixteen separate typical districts, both urban and rural, in England and Wales, Scotland and Ireland, in the hope that, from the particulars thus ascertained, we might be able to form at least a rough estimate of the whole number, and of the provision that it would be necessary to make for their proper treatment." These inquiries by medical experts were a most important part of the work of the Commission, and gave their conclusions and recommendations a precision and authority which could not have been obtained in any other way.

The Commissioners published their Report and evidence in eight Blue-Books, of which the first three contain the evidence on the original reference, and the fourth that on the extended reference. The fifth volume consists of appendix papers; the sixth contains the reports of the medical investigators; the seventh the report on the visit of certain Commissioners to America; while the eighth contains the Commissioners' own Reports and Recommendations.

It was stated in the Report that " of the gravity of the present state of things there is no doubt. The mass of facts that we have collected, the statements of our witnesses, and our own personal visits and investigations, compel the conclusion that there are numbers of mentally defective persons whose training is neglected, over whom no sufficient control is exercised, and whose wayward and irresponsible lives are productive of crime and misery, of much injury and mischief to themselves and to others, and of much

continuous expenditure wasteful to the community and to individual families.

"We find a local and 'permissive' system of public education which is available here and there for a limited section of mentally defective children, and which, even if it be useful during the years of training, is supplemented by no subsequent supervision and control, and is in consequence often misdirected and unserviceable. We find large numbers of persons who are committed to prisons for repeated offences, which, being the manifestations of a permanent defect of mind, there is no hope of repressing, much less of stopping, by short punitive sentences. We find lunatic asylums crowded with patients who do not require the careful hospital treatment that well-equipped asylums now afford, and who might be treated in many other ways more economically, and as efficiently. We find, also, at large in the population many mentally defective persons, adults, young persons, and children, who are, some in one way, some in another, incapable of self-control, and who are therefore exposed to constant moral danger themselves, and become the source of lasting injury to the community."

The fundamental recommendations of the Commission were that the Lunacy Commissioners for England and Wales should be replaced by a larger body, with extended powers and a wider purview, to be called "The Board of Control," which should be responsible for the proper care of all mentally defective persons. This central authority should supervise local administration. The Local Authority should be the Council of each County and County Borough, and they should be required by Statute to make suitable and sufficient provision for the men-

tally defective. They should exercise their powers through a Statutory Committee, to be called the "Committee for the Care of the Mentally Defective," which should take over the duties of the Visiting Committee, or as it is sometimes called, the Asylums Committee, of the County Council.

The Report of the Royal Commission excited widespread interest among public authorities and social workers throughout Great Britain, but it was not until considerable pressure had been put upon the Government, and two private Bills on the subject had been introduced, that the Home Secretary brought in (on May 16, 1912) a measure to give effect to its recommendations. This Bill did not get beyond the Committee stage in the Session of 1912, but was reintroduced in 1913, and received the Royal Assent on August 15. In England and Wales it came into operation on April 1, 1914; the corresponding Act for Scotland, which comprised also amendments of the Scottish Lunacy Law, came into operation on May 15, 1914. Those who desire full information are referred to the Mental Deficiency Acts themselves, prints of which may be obtained from Parliamentary publishers for a few pence. Our space will permit only a brief résumé of the principal provisions, more especially those relating to children.

Taking the English Act first, four classes of persons who are mentally defective are defined to be defectives within the meaning of the Act, as follows:

"(*a*) Idiots—that is to say, persons so deeply defective in mind from birth or from an early age as to be unable to guard themselves against common physical dangers.

"(*b*) Imbeciles—that is to say, persons in whose case there exists from birth or from an early age

mental defectiveness not amounting to idiocy, yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so.

" (*c*) Feeble-minded persons—that is to say, persons in whose case there exists from birth or from an early age mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision, and control for their own protection or for the protection of others, or, in the case of children, that they by reason of such defectiveness appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools.

" (*d*) Moral imbeciles—that is to say, persons who from an early age display some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect."

Though all persons falling under the above categories are deemed to be " defectives within the meaning of the Act," it would appear from Section 2 that they only become subject to be dealt with under the Act, (*a*) if under twenty-one, at the instance of the parent or guardian, or (*b*) at any age if found neglected, abandoned, destitute, or cruelly treated, criminal or inebriate, or being the pauper mother of an illegitimate child. Defective children over seven, notified by local Education Authorities as incapable of receiving benefit or further benefit in special schools or classes, or detrimental to other pupils in such schools, or certified by the Board of Education on account of special circumstances for supervision or guardianship, are also liable to be dealt with under the Act, as are also those leaving special schools or classes " in whose case the local Education Authority

are of opinion that it would be to their benefit that they should be sent to an institution or placed under guardianship." This latter provision gives valuable powers for securing permanent protection for those whose home conditions would militate against the improvement effected by special school training being retained and turned to account in after-life.

It will be seen that to be dealt with compulsorily under this Act the subject, if adult, must in some way have been brought into contact with existing law. In the case of children they must have at least been found liable to be ordered to be sent to a certified Industrial School, or have proved unfit for instruction in a special school, or at the end of their term there have proved that they require permanent care. The duty of ascertaining what children over the age of seven and under the age of sixteen are defectives devolves on the local Education Authorities, all of whom under the amended Elementary Education (Defective and Epileptic Children) Act will be called on to notify to their Local Authorities not only the names of those passed as fit subjects for education in special schools, and their condition when about to leave these schools, but also the names of those whom idiocy or imbecility renders uneducable, and consequently requiring to be dealt with under the Mental Deficiency Act by way of supervision, in an institution, or under guardianship. Doubtful cases are to be referred for the decision of the Board of Education. The efficiency of the Mental Deficiency Act, so far as children are concerned, depends largely upon the efficient working of the Education Act referred to. Those passed for special schools as "mentally defective" will generally fall under the definition given above of "feeble-minded," but will

only become "defectives" to be dealt with under the Mental Deficiency Act when reported as such at the end of their school career. Thereupon it becomes the duty of the Local Authority to deal with them as may seem desirable, either by supervision at their own homes, or by sending them to suitable institutions, or by placing them under guardianship.

The Board of Control, which now consists of the eight former paid Commissioners in Lunacy, with two additional Commissioners specially appointed under the Mental Deficiency Act, and a paid Chairman, together with three unpaid Commissioners, is the Central Authority on which devolves the general supervision, protection, and control of all types of defectives, the supervision of the administration by the Local Authorities of their powers and duties under the Act, the licensing, regulation, and inspection of homes and institutions of all classes for defectives, and visitation of those under guardianship or under private care, and the provision and maintenance of institutions for dangerous defectives.

The Local Authority under the Act is the County or County Borough Council, which will act through a specially appointed Committee for the care of the mentally defective, consisting either of (1) members of the Council (who must form the majority), together with non-Council members chosen by the Council for their special knowledge and experience of the subject, of whom some must be women; or (2) alternatively (at the discretion of the Council) the Visiting or Asylums Committees under the Lunacy Acts, with the addition of at least two women. In certain cases approved by the Home Secretary and the Local Government Board two or more Local Authorities may combine to form a joint Mental Deficiency Com-

mittee. Their duties and powers include the ascertaining, except in the case of those dealt with at the instance of their parents or guardians under Section 2 (1) (*a*), of what persons within their area are defectives subject to be dealt with under the Act, to provide suitable supervision for such persons, and, when necessary, to place them in institutions or under guardianship; to provide suitable and sufficient accommodation for such persons when sent to certified institutions by orders under the Act; to maintain them wholly or in part in institutions, approved homes, or under guardianship; to employ the officers necessary for carrying out the Act; and to make annual and such other Reports as may be required by the Board of Control. Local Authorities are not, however, bound to expend money upon the above objects, excepting the first, unless the contribution by Parliament in aid amounts to 50 per cent. of the total expenditure.

In addition to the Local Authorities, Poor Law Authorities are to retain the same powers as they previously possessed under the Poor Law to deal with pauper defectives, and will receive the same grants as they were entitled to under the Idiots Act, 1886, notwithstanding its repeal.

Four classes of institutions, etc., are contemplated under the Act, in addition to approved homes—viz.:

1. *State Institutions* for defectives of dangerous or violent propensities, to be established and managed by the Board of Control.

2. *Certified Institutions*, established by Local Authorities, benevolent societies (incorporated or otherwise), or disinterested individuals, to be certified, regulated, and inspected by the Board, and to possess powers of detention under conditions laid

down in the Act, and regulations framed by the Home Secretary.

3. *Certified Institutions* provided by *Poor Law Guardians*, and approved by the Board of Control, subject to the same conditions as above.

4. *Certified Houses*, established by individuals for private profit, approved by the Board of Control, but not eligible for defectives towards whose expenses there is a Parliamentary grant. These also have powers of detention.

Under the title of "Approved Homes," premises wherein defectives are received and supported wholly or partly by voluntary contributions, or by applying the excess of payments of some patients for or towards the support of other patients, and any similar establishment run for private profit, may be approved by the Board under such conditions as they may think fit. Such homes cannot receive defectives legally committed to an institution, and have no legal power of detention.

Elaborate Regulations, which are already in force, have been issued by the Home Secretary in pursuance of the Act under the title of "Provisional Regulations."* These describe in detail the duties of Local Authorities, the procedure on petitions, and the granting, transfer, renewal, revocation, and resignation of certificates for certified institutions and certified houses. They give rules for approvals of homes, and the management of certified institutions, certified houses, and approved homes, and also for the inspection of these institutions and houses. Forms of petitions, statutory declarations, orders, certificates, etc.,

* To be obtained from Wyman and Sons, 29, Bream's Buildings, Fetter Lane, E.C., and other Parliamentary publishers, price £3½d.

are appended. Space does not permit even a brief summary of these. It must suffice to state that ample precautions are taken to insure the suitability for their respective purposes of the various types of institutions, and by means of reports, records, and frequent official inspections, to safeguard the suitable and humane treatment of the inmates, and to prevent detention when not justified by the mental condition. For admission to all the establishments, other than approved homes, two medical certificates,* one of which must be by a practitioner approved by the Local Authority or the Board of Control for the purpose, are required, and in addition a judicial order in the case of any person not certified either as idiot or imbecile. It is only in the latter cases that a statement of particulars can be signed by other persons than the father or mother—*i.e.*, by a person undertaking the duties of guardian towards the patient. It must be remembered that the Idiots Act, 1886, having been repealed, the simple procedure by one medical certificate is no longer available, even in the case of idiots and imbeciles. As regards approved homes (presumably for border-line cases), though admission certificates are not prescribed, it seems likely that full particulars of the bodily and mental condition of inmates will have to be reported by the Medical Officer.

The Mental Deficiency and Lunacy (Scotland) Act, 1913,† is a counterpart of the English Act, with certain modifications adapting it to Scottish administration, and a few amendments of Scottish Lunacy Law.

* Form of Medical Certificate is printed in Appendix E, p. 264.

† To be obtained from Wyman and Sons, Ltd., Fetter Lane, E.C.; or H.M. Stationery Office, 23, Forth Street, Edinburgh.

In Part I. the expression " School Board " takes the place of " Education Committee " so far as ascertaining what children are defectives, and which of such children are educable in special schools, and making suitable provision for the education or proper care of such children between five and sixteen years of age when the parents or guardians are unable to do so; they must notify to the Parish Council and the General Board of Control the names of such children as are incapable of receiving benefit or further benefit from, or are otherwise unsuitable for, special schools or classes. The Parish Council is the Local Authority responsible for the care and supervision of such reported children, and also for ascertaining what persons of sixteen years or over are defectives subject to be dealt with under the Act, otherwise than at the instance of their parents or guardians, and for taking steps that they shall be dealt with by being sent to institutions or placed under guardianship. Upon the Sheriff devolves the duty of making judicial orders when these are required.

The General Board of Control for Scotland now consists of three paid Medical Commissioners (including the two formerly known as Lunacy Commissioners), in addition to the Chairman and two legal members, and of four Medical Deputy-Commissioners, one of the latter being a woman. Two others may, if necessary, be appointed. A District Lunacy Board will in future be known as the District Board of Control. If it comprises six elected women members, not more than two women must be co-opted. Their duties will be similar as regards carrying out this Act to those of County and County Borough Councils in England.

CHAPTER III

SPECIAL INSTRUCTION

FROM the preceding chapter it will be seen that considerable attention has been given in England of late years to the class of subnormal persons who are called in this country feeble-minded, in distinction to the imbecile and idiot groups. Recent legislation has taken account of them from the sociological stand point in the Mental Deficiency Act, and from the scholastic in the 1899 and 1914 Acts for the Education of Defective and Epileptic Children. In the first they are referred to, under the definition of *feeble-minded persons*, as children who by reason of mental defectiveness, not amounting to imbecility, existing from birth or from an early age, " appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools." In the latter they are referred to as " children not being imbecile, and not being merely dull or backward—that is to say, children, by reason of mental or physical defect, incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but not incapable by reason of such defect of receiving benefit from instruction in special classes or schools." It is to be remarked that the element of permanence appears in the first definition, but not in the second; and it may be argued therefrom that the special schools can reasonably be regarded as means of determining such

permanence, especially in relation to the need for segregation. It will also be noted that the term "mental defect," as used in the Mental Deficiency Act, has a wider connotation than in the Education Acts, where it embraces only one of the four classes covered by the former—viz., that of "feeble-minded."

With the judicious administration of the new Acts it is hoped that Great Britain will stand ahead of all other countries in its treatment of the mentally defective class. It must, however, be admitted that in the past German and Scandinavian countries have been in advance of us in organising practical arrangements for the training of exceptional children. So far back as 1863 there was established at Halle an auxiliary class (*Hilfsklasse*) for pupils found incapable of following the ordinary elementary school curriculum; in 1867 a similar class was established at Dresden. Leipsic and Brunswick followed, and gradually auxiliary schools (*Hilfschulen*) grew out of these classes. Herr Kielhorn, the director of the Brunswick auxiliary school (established in 1881), gave an account in 1894 of 32 auxiliary schools, consisting of 110 classes, with a teaching staff of 115, established in various parts of Germany. Herr Wintermann,* of Bremen, supplemented this statement in 1898 by the information that at that date auxiliary schools existed in 52 German towns, consisting of 202 classes, and containing 4,281 children (2,400 boys, 1,881 girls) under instruction by 225 teachers. So rapid was the development that at the end of 1905 Fräulein Dora Weinrich, of the Centrale für Private Fürsorge, Frankfort-on-Main, in her paper at the After-care Conference at Nottingham, said there were 230 special

* *Berichten über den ersten Verbandstag der Hülfschulen Deutschlands*, 1898.

schools, with 15,000 pupils, and that the aim was to have at least one in every town of 15,000 inhabitants. It is claimed that many children considered hopeless in the ordinary schools have been enabled by the special instruction given them to follow useful practical careers. The large extension of the auxiliary schools above noted is, in a practical country like Germany, perhaps the best testimony to their success.

In the Scandinavian countries also, in addition to the boarding establishments for imbeciles previously described, day classes for the instruction of "abnormal children" have been established for more than thirty years. In Christiania and Bergen they were started under the direction of Herr Karl Lippestad and of Herr Soethre respectively. In addition, separate classes for merely backward (not necessarily defective) children were organised in connection with two of the largest elementary schools in Bergen. In Denmark various grades of defectives are received either in day classes or in residential institutions, as may be necessary, in the chain of establishments organised and supervised by Dr. Keller, which have now been adopted by the State. The arrangements for instruction are very complete, and the ratio of teachers to taught liberal, the classes usually consisting of not more than eight or ten pupils. Stress is laid upon physical and manual exercises. The pupils not fit to return home after school training are drafted to working institutions, of which there are several grades. Farm work and other occupations, such as brush, broom, and basket making, are followed by the older boys. The older girls are employed in dairy and laundry work, as well as in a variety of home industries, such as weaving cloth for dresses, curtain material, etc. For some, situations in domestic and

dairy service are found, and it is said of the girls, whose careers are carefully watched, that " very few turn out badly." Professor Keller has kindly supplied us with a list of institutions, public and private, existing in Denmark, Norway, Sweden, and Finland, from which it appears that no less than forty-three establishments for the care of mental defectives have been established in these countries, with an aggregate accommodation for about 1,500 improvable and 600 unimprovable cases.

In Belgium special schools for the mentally defective were in existence for some years previous to the war, and in Brussels, Antwerp, and Ghent, there were also After-care Societies, which originated from the " Société Protectrice de l'Enfance Anormale." The movement in favour of " special schools " for subnormal children has also spread to Austria, to Switzerland, to France, and even to Spain. In Italy there exists a " National League for the Protection of Deficient Children," under the presidency of Signor Guido Baccelli, formerly Minister of Public Instruction, one of the first-fruits being the opening in Rome of a day-school. In America much important work has been done. The members of the Commission on the Care and Control of the Feeble-minded who visited that country were favourably impressed by what they saw in some of the States, for it must be remembered that each State has its own regulations and institutions. Our Commissioners were struck by the excellent practical work they saw being done by the feeble-minded, and also by the economical character of the buildings and arrangements generally. There are in America several industrial colonies for permanent care. These have been recognised as essential. Work in the special schools is regulated

with this view, and to the continuous training and supervision is no doubt largely due the excellent work done by some of the adult feeble-minded. Our Commissioners gave a specially interesting account of what they saw at the Templeton Colony for Feeble-minded Males, ninety miles from Boston. The colonists "are all required to do manual work, and many of them do nearly the full work of a free-labourer. We saw a group of four, with heavy sledges and hammers, breaking rock and drilling it for blasting with explosives. They were working steadily and without supervision. Farther on was another group of five men working in a field. They were bringing in stooks of corn, which they were loading upon a cart. Others in the shed were unloading and storing the corn. A further group was hauling brick in wheelbarrows. At a little distance there was a row of about a dozen, who, under the supervision of one man only, were working a field with sharp pickaxes. An imbecile was ploughing with a pair of horses, his daily task. All of these men had come from Dr. Fernald's schools for the feeble-minded, and a large proportion of those who were busily and happily engaged in useful work could never be taught to read and write; some had not human speech. The previous training was, of course, essential; idiots and low-grade imbeciles could not be employed in this way without preliminary training."

In England priority in the opening of a Special Class belongs to Leicester, where the School Board started one in April, 1892. In the same year were established in London "Schools for Special Instruction" of children who, by reason of physical or mental defects, could not be properly taught in the ordinary standards or by ordinary methods, Mrs.

Burgwin being appointed organising superintendent. Under her able direction, ninety-five centres of special instruction for mentally defective children have up to the present time been established, chiefly in the poorer districts of the Metropolis, with an attendance roll of 7,848 pupils—a number constantly increasing. The Board have wisely ordained that no more than twenty children be assigned to each teacher; in practice the classes are even smaller. The ratio of pupils is, however, much larger than that which obtains in the Scandinavian schools, where one teacher is provided for every ten pupils; but the superintendent utilises to the utmost the teaching force at her command by well-devised time-tables.* It may be remarked with regard to this that, though the ordinary school nomenclature of studies is retained (as in the case of the so-called "three R's"), much more than the ordinary instruction is included, sensorial and manual training and objective methods of demonstration being freely employed. The "occupations," which form an important part of each day's work, are specially adapted to the varying capacities of individual pupils. The results, as evidenced at annual exhibitions of the products of manual training in the London Council Schools generally, are most encouraging, and in some cases surprising. It may be stated, indeed, that at these exhibitions the array of work by children in the special classes creditably holds its own, side by side with that of the normal children. During the last ten years an advance has been made by the establishment of twelve centres for about 1,300 "Elder Boys," in which instruction is given in manual arts by male teachers. Four centres for 360 "Elder Girls" have also been established.

* See specimen time-table, Appendix D, p. 262-3.

The selection of pupils for these classes is made by medical officers appointed for the purpose in conjunction with the Superintendent of Special Instruction. The parents, and also the family doctor, may attend the examination; but we shall not discuss here the mode of procedure, as we have devoted a special chapter (Chapter VII.) to this subject.

The Report of the Chief Medical Officer of the Board of Education for 1915 states that up to July 31, 1914, the number of certified schools for mentally defective children in England and Wales was 184, with accommodation for 14,555 children, and a total average of 13,563 on the register. These include eleven residential schools, providing accommodation for 902 children on the register. The present Report stated that 177 out of 317 education authorities had taken action under the Act, and upwards of fifty authorities had themselves established schools. The Royal Commission estimated the number of children in England and Wales needing provision at 35,662. About two-fifths of this number are being dealt with at the present time in certified special schools, and the Chief Medical Officer of the Board of Education considers that the aggregate accommodation necessary for educable mental defectives, excluding idiots and imbeciles, amounts to about 25,000 school places.

There is, unfortunately, sometimes prejudice in the minds of parents against the attendance of their children at special schools, as stamping them with inferiority. The Act of 1899 recognises parental rights in Subsection 5 of Section 2, which compels school authorities to "make provision for the examination from time to time of any child dealt with under this section, in order to ascertain whether such child has attained such a mental and physical con-

dition as to be fit to attend the ordinary classes of public elementary schools," and, if the parents so request, re-examination must be made at intervals of not less than six months. The amending Act of 1914 further provides for the parents being consulted by the Local Education Authority on the subject of suitable provision for the mentally defective child, which, if not made by the parents, must be provided by the authority either in a special day school or class, or in a special residential school. The parents are to have a certain choice in the selection of the former, and their written consent, which must not be unreasonably withheld, is necessary before sending the child to a boarding-school.

Education Committees have made provision for the periodical examination by the medical officers of all children attending the special classes. On their report, which is based to a large extent on information as to progress furnished by the "special" teachers, improved cases are sent back to the ordinary elementary schools. In view of the fact that under the Mental Deficiency Act (Section 2, 2) notice will have to be given by the Education Authority to the Local Authority of all defective children over the age of seven, (1) who have been ascertained to be incapable of receiving benefit or further benefit in special schools or classes, or who are detrimental to the other children in those classes, or (2) who on or before attaining the age of sixteen are about to be withdrawn or discharged from such classes, and require care in an institution or under guardianship, it is important that the first and subsequent examinations should be conducted with precision on a definite plan. An elaborate scheme for this has therefore been drawn up by the Board of Education.

There are a few educational homes which receive children of the better social class who are so far deficient or irregular in mental development as to require special education. As the mental deficiency or irregularity is often intimately connected with physical abnormality, skilled medical supervision is an advantage. It is obvious that a child whose mental deficiency or nervous peculiarity is but slight will have a better chance of improvement, when educated with those of similar mental calibre, than if subjected to hopeless competition with normal children at an ordinary school, or, on the other hand, exposed to the depressing influences of an institution where idiots are received. Such private establishments are now subject to the approval and visitation of the Board of Control.

In addition to arrangements organised by Education Committees, certain philanthropic agencies have, since 1890, established industrial homes in various parts of the country for the employment, under judicious supervision, of feeble-minded adolescents. In a few instances there have also been established institutions for the training of younger children for whom a boarding-school is essential, either on account of immoral, vicious, or truant tendencies, or because they come from very bad homes. In 1896 the National Association for Promoting the Welfare of the Feeble-minded was formed, with the object of co-ordinating the scattered efforts that had already been made, and arousing a larger share of public interest. It has under its immediate control in the neighbourhood of the Metropolis three homes, two for girls beyond school age, and one for feeble-minded mothers and their children, and has established, under the patronage of H.R.H. the Princess Christian. an

Industrial Colony in Kent, where over 200 boys and girls and adults are at present resident. They are accommodated in scattered buildings on various parts of the estate of 170 acres, the males being employed principally in farm work, and also in carpentering, shoemaking, etc., and the females in domestic, dairy, and laundry work.

In May, 1902, the Incorporated Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded opened a boarding-school for boys at Sandlebridge, near Manchester, and in September of the same year a home for girls, all under the management of Miss Mary Dendy. In the first instance, 12 boys and 8 girls were admitted. In September, 1914, there were 161 boys under care, 102 of them being under sixteen, and 59 over sixteen, years of age; and 104 girls, of whom 53 were under, and 51 over, sixteen. Children are not admitted over thirteen, and as far as possible are kept for life; 42 boys work on the farm and garden, and 52 girls are employed in the laundry and the various houses.

In May, 1907, the Sandwell Hall Boarding-school for the Feeble-minded was opened near Birmingham by the generous efforts of the Rev. H. N. Burden, one of the members of the Royal Commission on the Care and Control of the Feeble-minded. Sandwell Hall was formerly the family seat of the Earls of Dartmouth, and stands in the midst of a spacious park a few miles north of Birmingham. In this institution special arrangements were made for training in practical work—gardening, carpentry, boot-making, brush-making, laundry work, carpet-weaving, and tailoring. The full complement of 200 was soon received. At first both boys and girls were admitted, but the girls have since been transferred, and Sandwell is now

reserved for boys only. No cases are retained after sixteen, but whenever possible they are drafted on to other institutions. Mr. Burden's energy and enterprise have, however, extended far beyond the limits of Sandwell Hall, with the result that Sandwell is now merely one of a group of institutions, called the "National Institutions for Persons requiring Care and Control." The central offices of the Incorporation are at 14, Howick Place, Westminster. The institutions are intended for "*permanent* as distinct from temporary care, and no case is knowingly received as a temporary measure." They include Stoke Park Colony, near Bristol, opened in 1908, and now certified by the Board of Control as an "institution" for 750 male and female cases, under the Mental Deficiency Act, and also certified by the Home Office under the Children Act as a Special School for mentally defective children; the Midland Counties Institution, Whittington Hall, Chesterfield, certified by the Board of Control for 320 female cases; and the Eastern Counties Institution, East Harling, Norfolk, certified by the Board of Control for 330 male cases. The Royal Victoria Home near Bristol and Clevedon Hall in Somersetshire are registered as "ancillary" to Stoke Park, and the latter is intended partly for the use of those members of the staff and inmates of the other houses who require change and special treatment, and partly for the training of specially selected girls with very slight mental defect, who may ultimately become fit for domestic service in better-class situations.

In May, 1908, the three Boards of Guardians then responsible for the city of Birmingham—namely, the Aston, Birmingham, and King's Norton Boards—opened the Monyhull Colony near Birmingham for

Epileptic and Feeble-minded Persons, which has been described in Chapter I.

Altogether there are now in England a considerable number of homes of this class, particulars of which will be found in Appendix A. The accommodation so far available, however, is inadequate to deal with the large number of cases in need of provision. All such institutions have a long waiting list, and many Committees for the Care of the Mentally Defective who have taken up their duties under the Mental Deficiency Act have found that they must establish institutions of their own to provide the accommodation they require.

A few illustrative cases, giving an idea of the class of children to whom the designation of "feeble-minded" may appropriately be applied, will help to elucidate the subject:

Private Cases.

Case I.—A child of highly intellectual parents is noted to be somewhat delicate in babyhood, but no suspicion of mental abnormality is entertained by his parents until, at two years of age, it is found he uses only a few monosyllabic words, and does not try to construct sentences for himself, though he can perfectly well repeat what is said to him. He frequently, indeed, repeats questions put to him instead of replying to them, thus showing that the defect is not one of hearing, but of understanding. Much care and patience is exercised by an intelligent mother, with the result that at four he speaks fairly well, though with thick utterance. Home education is carried on till he is seven years of age, but a brother two years younger is almost two

years in advance of him in elementary studies. He is then sent to a kindergarten for morning lessons; he takes interest in the songs and in simple musical drill, does paper-folding, stick-laying, mat-weaving, and bead-threading in series of number and colour. His interest, however, soon flags, and he is apt to repeat the same question again and again, as if not attending to the answer. In calculation he makes but little progress, and with difficulty masters the simple rules of arithmetic. By dint of individual instruction he attains, by the time he is ten years of age, the power of reading, though in a monotonous style, easy stories in a primer, writes copies in text-hand, and plays simple exercises on the piano. There is, however, still a marked childishness of manner, a thick articulation and *staccato* utterance, and a tendency to repeat questions in a meaningless way. His bodily development has improved, and his only sensory defect is an error of refraction corrected by spectacles. Some twitching movement is noticeable in the muscles of the fingers, especially under excitement; but otherwise muscular control is fairly good. Under drill, regulated muscular exercise, manual training, and varied but brief school lessons, considerable improvement is proceeding, and he is a steady worker in garden, and good at Sloyd work. (He is now learning practical farming.)

CASE II.—A pretty, well-nourished little girl of five, the third child of healthy, intelligent parents.

Type.—Mongolian.

The family history records nothing unfavourable.

History.—As a baby she was not able to suck, and was therefore brought up with great difficulty on a bottle. She could not walk or talk till four years of age.

On examination, she is able to count to 20, and has a good memory. She has some hypermetropic astigmatism, for which glasses are prescribed.

On examination at eight years of age, she reads easy words and writes a little; she recognises animals in

pictures, and can count up to 100, but cannot calculate at all. She can almost dress herself, and is useful in the house. The only trouble is weak power of attention.

A year later she was able to write a short letter from dictation, and was improving in every way.

CASE III.—A stupid-looking youth of eighteen; height, 5 feet 10½ inches.

Family History.—The father died at forty-five of pneumonia. The paternal grandfather, who had been in the army, was a heavy drinker; he died at seventy-two, having done no work for the last twenty-five years of his life.

On examination, he is found to be a high-grade defective of no special type. He has a small forehead and a defective occiput; the little fingers are abnormally short, and he is flat-footed. He reads the newspaper, can write and perform simple calculations. He knows the day of the week and the year, but not what month it is; he does not know the name of the King, though he can say who the last King was.

The *History* is that he was precocious as a child, and not considered abnormal till he left the infant school, when he was found to be dull at learning. He was, however, very mischievous and imaginative. At thirteen years of age he was only in Standard IV. The parents were advised that work would bring him out, so he was sent to a cabinet-maker's. After a few months he was sent home as having no adaptability. He got another place as an errand-boy, but nothing could be made of him, and the same tale was told at other places. His condition remained much the same till eighteen years of age, when it was noticed that he was getting more lazy and otherwise deteriorating.

The following are examples of cases presented for 'Special Instruction" from Council Schools:

NOTES ON ADMISSION.

CASE IV. (Microcephalic type).—F. D., aged seven years seven months. Small for age, fairly nourished, well limbed. Senses perfect. Head small with narrow forehead, tapers towards vertex, circumference 19 inches. Palate high and narrow. Epicanthus. Mouth breather. Hands well extended. Has attended infant school three years. Knows letters, and can form O, A, I, T. Cannot count correctly, and says that he has three eyes, a dog six legs, etc. Requires special instruction, but should have more manual than mental work, as he seems subject to headaches. Should be examined for adenoids.

CASE V. (Syphilitic taint).—M. O., aged twelve. A dull-looking girl with dusky complexion. Head 21 inches. Radiating lines around mouth. Teeth "peggy." Sight of right eye destroyed by interstitial keratitis, some opacity of left, but fair vision. Slightly deaf. Seems to have been almost stationary the last two years. Is excitable at times, but generally slow in reaction. Reads from primer in drawling way. Writes untidily. Can add and subtract a little. Unfit for ordinary standards, but may learn some manual work in special instruction class, but will probably retrograde.

CASE VI. (Mongolian type).—S. B., a delicate boy of ten, with a stoop. He cannot quite dress himself, and is very restless; little power of concentration. He can count to 20, but does not know what twice 3 is. He can interpret simple pictures, and recognises a penny and a halfpenny, but said a sixpence was a shilling. Unfit for an ordinary school, but will improve in a special class, especially when doing manual work, which will provide an outlet for his restlessness and strengthen his power of concentration.

The following have been under special instruction for a time:

CASE VII. (Mongoloid type).—P. W., a fairly grown girl of twelve, with obliquely-set eyes, rough and ruddy skin, tongue with shallow transverse fissures, broad, short-fingered hand, and incurved little fingers. After three years' special instruction has learned to read in second-standard book, to work addition and subtraction sums, and to write from dictation. She is also progressing at laundry and cookery classes. When admitted at age of nine, incapable of standard work in girls' school; now fit to join second standard.

CASE VIII. (Sporadic cretin).—A. S., aged fourteen, admitted four years ago to special school, being unfit for ordinary school in consequence of physical and mental abnormalities characteristic of cretinism. During the last three years has had thyroid treatment at Children's Hospital, and has notably improved. From being an inert dwarf, with baggy cheeks and protuberant abdomen, he has become an active (somewhat mischievous) boy of bright expression and slender figure, and has grown 8 inches (from 39½ to 47½) in last two years. Now knows the letters and figures; can write his name and add a little, although originally absolutely incapable of any educational attainment.

CHAPTER IV

PATHOLOGICAL CLASSIFICATION OF FORMS OF MENTAL DEFICIENCY

As stated in the preface to the first edition, it is not intended in the present work to do more than glance at the pathological aspects of the subject. Those interested in these aspects will find much that is valuable in the well-known textbook by Ireland,* in successive volumes of " Recherches " by Bourneville,† in an article by Fletcher Beach in Hack Tuke's ‡ " Dictionary of Psychological Medicine," in the publications of Hammarberg,§ and particularly of J. S. Bolton,‖ and in the writings of Tredgold ¶ and Sherlock.** The most important facts in pathology from the clinical point of view are those that are serviceable in classifying cases. Before describing these, however, a short account of the general pathology may be interesting. And first

* *Mental Affections of Children*, W. W. Ireland, 1898.

† *Recherches sur l'Epilepsie, l'Hystérie, et l'Idiotie*, Paris, 1890 *et seq.*

‡ See also article on " Idiocy and Imbecility " in Clifford Allbutt's *System of Medicine*, vol. viii.

§ Hammarberg, *Studien über Klinik und Pathologie der Idiotie*," Upsala, 1895.

‖ " Amentia and Dementia," *Journal of Mental Science*, 1905 and 1906. Also various contributions to *Brain* on "The Brain in Health and Disease," London, 1914, etc.

¶ *Mental Deficiency*, A. F. Tredgold (second edition), 1914.

** *The Feebleminded*, E. B. Sherlock, 1911.

we remark that in connection with mental deficiency there are two main divisions of cerebral abnormality: (*a*) that arising from formative or developmental defect, and (*b*) that resulting from inflammatory or degenerative processes. These two classes are now usually spoken of as **Primary** and **Secondary Amentia,** terms suggested by Dr. Tredgold, who states that probably about 90 per cent. of all cases may be assigned to the first group. **Primary Amentia** denotes mental defect due to an intrinsic cause (morbid heredity), **Secondary Amentia** that due to an extrinsic cause (traumatism, disease or other unfavourable environment). It is important to realise that the second group includes a mixed class of cases, in which the actual lesion supervenes upon a brain originally imperfect in development; to such cases, occurring at a crisis of early life, the name DEVELOPMENTAL is often applied. The extent of the cerebral abnormality, whether original or acquired, may *a priori* be expected to bear some proportion to the degree of mental defect; this is usually the case, though it is necessary to bear in mind that microscopic as well as macroscopic constitution of brain tissue must be taken into account, and that certain portions of the brain are of more importance (*quâ* intelligence) than others.

Recent microscopical investigations have yielded a rich harvest of facts. In primary amentia cellular changes have been found in all regions of the brain. The prefrontal and, to a less extent, the parietal lobes, are, however, the two situations in which they most frequently occur.* Dr. Bolton states that "the regions of under-development in cases of mental deficiency and of wasting in cases of dementia (or

* See also *Goulstonian Lectures*, R.C.P., by J. S. Bolton, February and March, 1910.

permanent psychic disability due to neuronic degeneration) were satisfactorily determined to have their chief focus in the prefrontal region." According to Dr. Tredgold, " As compared with the nerve cells of the healthy brain, those of the ament are characterised by the following conditions: (1) Numerical deficiency; (2) irregular arrangement; (3) imperfect development of individual cells."* He further states " that the amount of change discoverable by the microscope is distinctly proportionate to the degree of mental deficiency present during life." Among other changes a paucity of dendrons and gemmules and pigmentation are noticeable. The pyramidal layer of the cortex shows the most obvious abnormalities; it is in its deeper layer that pigmentation is most frequently observed. At the same time " the bands of tangentially coursing fibres comprising the association systems show a very definite diminution in cases of severe amentia, so great, indeed, as often to be apparent to the naked eye. Generally speaking, the most marked alteration occurs in the fibres composing the outer line of Baillarger, next in the super- and inter-radial bundles, whilst the superficial tangential fibres are somewhat less affected."† There is often also *sclerosis*, or overgrowth of neuroglia, usually in the form of localised patches. These are found chiefly in three situations: (1) the grey matter of the cerebral cortex; (2) the floor of the lateral ventricles; (3) the surface of the hemisphere under the pia, closely applied to the cortex. These histological changes are the essentials in mental defect, rather than the gross lesions we shall presently describe.

* A. F. Tredgold, *Mental Deficiency*, 1914, p. 75.

† *Ibid.*, p. 79.

Localised signs of disease in an otherwise well-developed brain are suggestive of *secondary* amentia as distinguished from *primary*. In the absence of a reliable history, however, the distinction is difficult, and often impossible, especially as the dementia that frequently supervenes is characterised by histological signs that obscure the issue.

As regards macroscopic appearances, we find that frequently, and especially in the more extreme cases of mental defect, there are definite changes visible to the naked eye. The skull in primary amentia is often thick and dense, and the diploë frequently non-existent. The sutures are sometimes prematurely united, a condition, however, in no way the cause of poor cerebral development, as was at one time thought.

As a rule, in primary amentia the brain weighs less than the normal. It may be peculiar in configuration, and the convolutions may be irregular or unusually simply arranged. There may be gross malformations of development connected with the fissures, basal ganglia, and other parts.

Defects of the Corpus Callosum and partial atrophies affecting portions only of the brain are occasionally seen. Such gross lesions, however, although more common in the mentally defective and epileptic, have been found in individuals who appeared to be normal. They do not, therefore, predicate mental defect unless associated with the histological changes already described, or involving an area essential to the normal intellectual or psychic processes. Among some remarkable abnormalities the following are specially interesting. In the autopsy of a hemiplegic imbecile, who died at twenty-one years of age, a gap 4 inches in length was found extending from the

PLATE II.

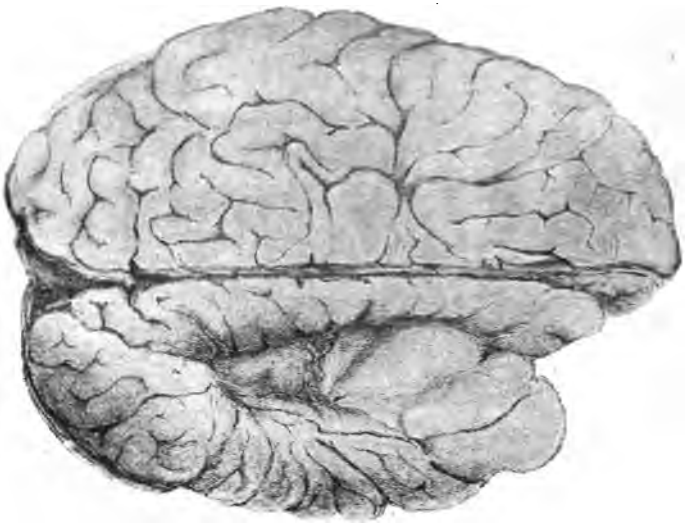


FIG. 1.—PORENCEPHALUS.

(R.A.A. 1884.)

FIG. 2.

FIG. 3

DEFECT OF CEREBELLUM.

(R.A.A. 1884.)

ABNORMALITIES IN BRAIN STRUCTURE.

To face page 55.

anterior part of the right frontal lobe nearly to the occipital, leaving the orbital plate uncovered, and disclosing part of the cavity of the lateral sinus (see Plate II., Fig. 1). Internally, a narrow ridge, marked by convolutions, separated this gap from the longitudinal sinus; between it and the temporo-sphenoidal lobe was seen standing out, quite uncovered by convolutions, part of the caudate nucleus. The brain weighed 32½ ounces. This defect was due to an arrest of development, as there was no cicatricial tissue to be made out, and no descending sclerosis of the spinal cord. The mother gave an account of fright and injury in consequence of being knocked down by a cow during the sixth month of pregnancy. The patient's left arm and hand were smaller than the right; his speech was indistinct, but he was able to frame ordinary sentences; while his senses were normal. He made himself useful, and could clean shoes well.

A rare case of **atrophy of the cerebellum** was discovered at the autopsy of an imbecile girl of fifteen, who died at the Royal Albert Asylum of phthisis. As no marked ataxia or inco-ordination had been noticed during life, it was with some surprise that a merely rudimentary condition of the left lobe of the cerebellum was observed (see Plate II., Figs. 2 and 3). This was represented by a papilla no larger than the nail of one's little finger, while the vermiform process was a minute nodule showing faint signs of lamination on the surface; the right lobe, which constituted the main portion of the cerebellum, was only half a square inch in superficial area, and only a quarter of an inch thick at its base. This lilliputian lobule had, however, the normal laminated appearance and structure. The pons was

indicated by a few transverse fibres. With the exception of the cerebellum and its peduncles, the rest of the encephalon (which weighed 42 ounces) and the cranial nerves appeared to be normal. In this case there had been considerable feebleness of body as well as of mind, the girl having suffered from a protracted illness (phthisis), but the gait was by no means characteristic of cerebellar abnormality.

We may appropriately refer here to the two interesting groups of cases spoken of as **word-deaf** and **word-blind,** which are due to absence or imperfect development of special portions of the brain. These conditions are not uncommon, occurring, according to Dr. C. J. Thomas,* about once in every 2,000 children, and probably at least once in every twenty mentally defective children. In our experience word-deafness is a very rare condition, while slight degrees of word-blindness are not infrequent, even amongst ordinary school-children. Just as with the condition of oxycephaly to be presently described, the first accounts were written by ophthalmic surgeons, and to Dr. Hinshelwood† in particular we are indebted for some instructive clinical cases. Dr. Kerr,‡ late medical officer to the London County Council Education Committee, and others have since described the condition. Those who are specially interested will find his papers, and also those of Dr. Thomas,§ well worthy of study.

* *Some Forms of Congenital Aphasia in their Educational Aspects*, 1905.

† *Lancet*, May 26, 1900; *Ophthalmic Review*, 1902.

‡ *Lancet*, 1900, i., p. 1446; *Report of Medical Officer of School Board for London*, 1904.

§ C. J. Thomas, *op. cit.*, *The Aphasias of Childhood and Educational Hygiene*, London, 1908.

A typical WORD-DEAF child, though he does not appear to be as intelligent as one whose only defect is word-blindness, is superior to the ordinary mental defective. He may be able to write from a copy, to draw well, and use his fingers; his vision is normal, and he is not really deaf, for he can respond by raising his head to sounds of all kinds, even when faint. It is not the actual hearing centre which is at fault, but the centre which interprets the sound of words heard. He can reproduce many words without understanding them, though the meaning of an occasional word may dawn upon him when his lips move to pronounce it. Some of these children keep their eyes on a speaker's lips, and recognise a few nouns by lip-reading. The only chance of training is to teach them to understand language by lip-reading, and so "connote the mechanism employed in uttering words with their meaning."* This must be done at whatever cost of time and patience, because the understanding of language is a necessity for all human beings.

The typical WORD-BLIND child is apparently intelligent, often clever at hand-work and drawing, with good powers of observation and reasoning; in calculation and manipulation of Arabic numerals he may be equal to the normal. He is, however, quite unable to read even words of one syllable, and the most painstaking attempts to teach him reading are an absolute failure. Vision is normal. Although he cannot recognise words, yet if a word is spelt out to him he is often able to respond with the correct one. Occasionally he is able to arrive at the meanings of

* Dr. Leonard Guthrie, "Functional Diseases of the Nervous System," *Diseases of Children*, edited by Garrod, Batten, and Thursfield, p. 691.

words by spelling them aloud. It is not the actual centre for vision which is to blame, but, according to Dr. Thomas, the defect is due to "a congenital poverty of structural elements" of the visual word-centre, which is situated in the supramarginal and angular gyri of the left side, which results in word-blindness.

In the case of word-blind children the auditory centre can be trained to supplement the visual, and also much may be done to develop a kinæsthetic memory of word-meanings by making the pupil move his lips as he reads, or trace the words on paper, or by the use of the Braille raised type. The process is, however, so laborious and slow, and the ultimate result so far from being really satisfactory, that with working-class children, at any rate, time should not be wasted in any attempts of the kind, but the child should be put at once to tasks for which he has more natural capacity.

The condition designated **Mind-Blindness** is one essentially of the receiving rather than the storing visual centre; for this "a lesion of the posterior part of the corpus callosum is generally considered, at least partly, responsible."*

We have often thought that a similar explanation may be given for some at least of the cases spoken of as MORAL DEFECTIVES, an account of which we have included in the next chapter. Moral sense must depend on the integrity of more than a single area of the brain; a lesion of one of the areas involved, or of some of the connecting fibres, can scarcely fail to have serious consequences.

* *Brain*, Vol. 36, p. 119, "Experimental and Pathologico-Anatomical Researches on the Corpus Callosum," by Dr. C. T. Van Valkenburg, Amsterdam.

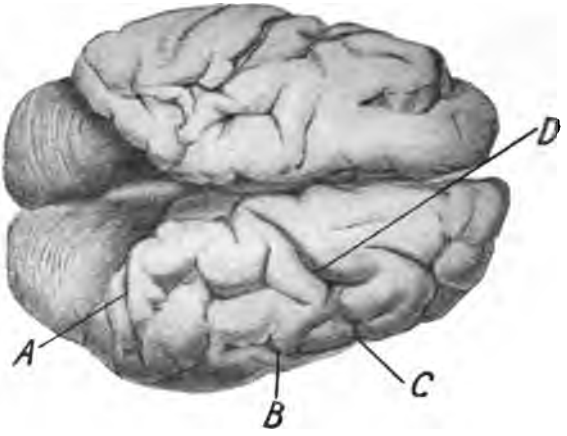


FIG. 1.—MICROCEPHALIC BRAIN (CONVEXITY).

(Half natural size.)

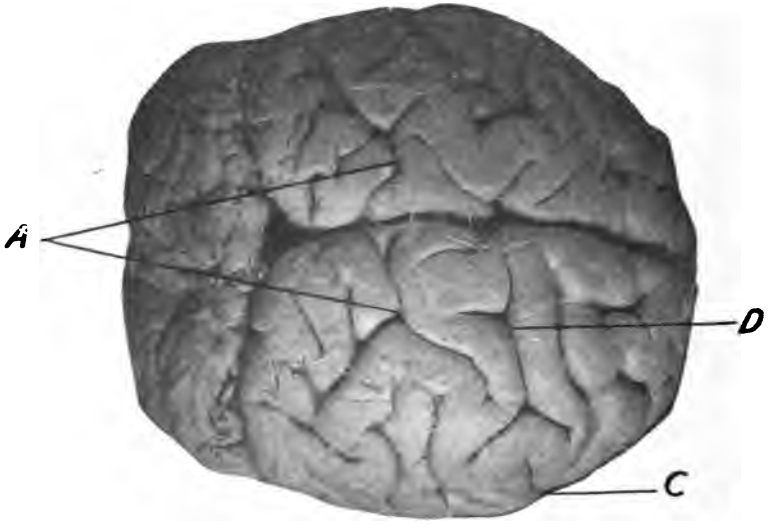


FIG. 2.—BRAIN OF "FREDDY" (CONVEXITY).

(Natural size, after preservation in spirit.)

MICROCEPHALIC BRAINS.

To face page 59.

Of the obvious primary abnormalities, no condition is more striking than that of **Microcephalus.** Characteristic in its extreme form of a low type of idiocy, in which have been traced simian and even theroid resemblances, it may be traced through a series of gradations of head measurement from idiocy and imbecility to simple "feeble-mindedness." Microcephalus, however, does not depend solely upon diminutive size of the head, as ascertained by measurement. In our opinion the limitation of the term proposed by some * to cases in which the cranial circumference does not exceed 17 inches is scarcely scientific. There is a characteristic form,† as well as size, indicative of microcephaly, consisting of a narrow, rapidly receding forehead, a somewhat pointed vertex, and a flat occiput. The frontal and parietal lobes are on a small scale, but it is in the occipital and temporo-sphenoidal that we usually find the most striking evidence of arrest in development. This is well shown in the case of a microcephalic girl of fifteen, formerly under the care of Dr. Shuttleworth, at the Royal Albert Asylum, whose brain was fully described by him in the *Journal of Mental Science* for October, 1878. A view of the convexity of the brain, which weighed, when removed, only 21½ oz., is appended (Plate III., Fig. 1, half size.)‡ A still more remarkable case ("Freddy"), for twenty years under Dr. Shuttleworth's observa-

* Ireland, *op. cit.*, p. 89.

† See Plate IV., Fig. 1, p. 60.

‡ DESCRIPTION OF PLATE III.—FIG. 1.—General view of Microcephalic Brain seen from above. A. Parieto-occipital fissure. B. Horizontal fissure. C. Ascending limb of Sylvian fissure. D. Fissure of Rolando.

FIG. 2.—Lettering as in Fig. 1. See also *Trans. Roy Dublin Society*, new ser., vol. v., plate xxxvi.

tion at Lancaster, was anatomically reviewed by Dr. Telford Smith and the late Professor Cunningham.* His brain, when recent, weighed only 12½ ounces. The convolutions were simple; fairly distinguishable in the anterior lobes, they became rudimentary posteriorly, the occipital and temporo-sphenoidal lobes being, indeed, very imperfectly developed. This "Aztec"-like youth,† who had large bright eyes, an aquiline nose, and somewhat receding chin, manifested good powers of observation, but was only able to make use of a few monosyllabic words. He had considerable will power, and was in no sense a low-grade idiot, though but little amenable to training. We have repeatedly seen boys and girls with heads measuring only 19 inches taught to read and write, and do industrial work. Quality of brain is an important factor, as well as quantity; in cases of microcephalus what little there is, is usually fairly active. The condition of *infantilism*, which is described in the next chapter in connection with cretinism, is sometimes, however, a prominent factor. Many microcephalics are dwarfs.

Primary cases of **Hydrocephalus** are not infrequent, though the condition is also secondary. In both conditions the hydrocephalus may be either internal or external, the latter being much the rarer form. Very different degrees of mental enfeeblement are met with in this type, and it is remarkable that a considerable amount of intelligence may subsist with a very watery brain, as in the case of a girl of eleven, peculiar, but only slightly imbecile, who continued to converse rationally till within an hour of her death,

* *Trans. Roy. Dublin Society*, vol. v., ser. 2, part viii.

† See Plate IV., Fig. 1, and Plate III., Fig. 2, p. 59.

FIG. 1.—"FREDDY" (ROYAL ALBERT ASYLUM).

FIG. 2 (SPECIAL SCHOOL).

FIG. 3 (SPECIAL SCHOOL).

MICROCEPHALIC CASES.

To face page 60.

PLATE V.

FIG. 1.

FIG. 2.

HYDROCEPHALIC TYPE.

To face page 61.

when it was found that her large globular skull* contained 20 ounces of fluid to 36 of cerebral matter. In some cases optic neuritis and signs of pressure occur, and convulsions usher in a fatal termination. As a rule, indeed, it is only in cases where active symptoms have subsided that educational methods are admissible. Plate V., Fig. 2, portrays a hydrocephalic youth, with a head circumference of 23 inches, in whose case the chief residual indication of defect was in the direction of moral imbecility. In some cases syphilitic or tubercular lesions have been found; these would suggest that the case belongs to the secondary class, as does also the finding of a positive Wassermann reaction.

In **Hypertrophic** cases the head is also enlarged, though not to the same extent as in hydrocephalus, no record existing of one over 25 inches; nor is the enlargement in the same directions, the shape being square rather than round. There is no excess of fluid, but an enlargement of the brain substance; the hypertrophy, however, affects the interstitial tissue only, and is a diffuse gliosis. The distinction between these cases and hydrocephalus is not difficult, as will be shown in the next chapter.

A frequent congenital type, obtaining (in England, at least)† in nearly 5 per cent. of mentally defective children, in greater or less degree, is that which has been designated "**Mongol**" or "**Kalmuc,**" owing to the physiognomical resemblance to those races. In these cases the skull is a short oval,‡ the transverse and longitudinal diameters approximating, while

* See Plate XII., Fig. 3, p. 105.

† See paper on "Mongolian Imbecility," by G. E. Shuttleworth, *British Medical Journal*, September 11, 1909.

‡ See Plate XII., Fig. 2, p. 105; Plate XIV., Fig. 1, p. 119.

there is a tendency to parallelism of the frontal and occipital planes. In children of this type the brain is not necessarily small, but, according to Dr. A. W. Wilmarth,* whose observations are confirmed by Dr. Tredgold, there is a notable diminution in the size of the pons, medulla, and cerebellum. It has been suggested that the imperfect development of these parts may result in a deficient expansion of the base of the skull, and that this leads to the characteristic physiognomy. The brain is characterised by great simplicity of development, and by paucity of multipolar cells. The convolutions are large and coarse, and there are few secondary convolutions.† Babonneix,‡ Fromm,§ Bernheim-Karrer,|| Lange,¶ and others, have found abnormalities, such as hypoplasia, sclerosis, atrophy, and hæmorrhages, in the thyroid gland in some cases of Mongolism. So many other cases have, however, been examined and found to possess a normal thyroid that we are justified in assuming that when a lesion of the thyroid does occur it is an accidental complication, and not necessarily associated.

The characteristic features of the Mongolian type will be further discussed in the next chapter, which treats of diagnosis.

There is a large group of cases in which mental

* A. W. Wilmarth, "Report on the Examination of One Hundred Brains of Feeble-Minded Children," *Alienist and Neurologist*, October, 1890.

† See Plate VI., Figs. 1, 2, and 3.

‡ Babonneix, "Contribution à l'Étude anatomique de l'Idiotie Mongolienne," *Archives de Médecine des Enfants*, July, 1909.

§ Fromm, *Jahrb. für Kinderheilk.*, November, 1905.

|| Bernheim-Karrer, *Jahrb. für Kinderheilk.*, 1906, p. 26.

¶ Lange, *Jahrb. für Kinderheilk.*, 1906, p. 753.

PLATE VI.

FIG. 1.
(CONVEXITY.)

FIG. 2.
(BASE.)

FIG. 3.
(LEFT LATERAL VIEW.)
"MONGOL" BRAIN.

To face page 62.

FIG. 1.—AMERICAN IMBECILE WITH "LEPTOCEPHALIC" CRANIUM.

FIG. 2.—AMERICAN HIGH-GRADE IMBECILE WITH SCAPHOCEPHALIC CRANIUM.

(J. Moorhead Murdoch, M.D.)

From *Journal of Psycho-Asthenics*, vol. xi. (by kind permission).

To face page 63.

deficiency dating from birth may be said to depend upon a highly **neurotic** heredity. It is probable that in such cases there is original defect in constitution of neurones with a tendency to irregular discharge, and an imperfection of those inhibitory arrangements which are gradually evolved in the normal child. Dr. J. Langdon-Down long ago pointed out* the frequent association with the neurotic type of a "prow-shaped skull"—*i.e.*, a cranium tapering anteriorly to a prominent ridge marking the position of the medio-frontal suture, synostosis of which has been deferred, owing to some intra-uterine check, which has also arrested the development of the cerebral centres, and rendered them unstable. Such cases have been designated *Scaphocephalic*,† and even if they show no marked intellectual defect in early childhood, are apt to break down from the strain of second dentition or of puberty.

Cases which do not conform to any of the above types, but still show abnormal configuration, are spoken of by some authorities as **Simple Congenital.** This group has been well described by Dr. Fletcher Beach.‡ They show no marked deformity of the skull or limbs, but are usually below the average height. The expression of the face is vacant. There are several obvious anatomical peculiarities, the so-called stigmata of degeneration. These are usually multiple, instead of occurring singly, as may happen in normal individuals. Found in the face, head, and hand, they take the form of obliteration or exaggera-

* *Mental Affections of Childhood and Youth*, J. Langdon-Down, 1887.

† See Plate VII., Fig. 2.

‡ *Types of Mental Deficiency*, Report of First National Conference of Special School Teachers, held in Manchester (Tinling and Co., Liverpool), 1904.

tion of normal markings, such as those of the antihelix or other parts of the ear, or consist in marked diminution in size of the mouth, orbital fissures, or lower jaw. The teeth are often irregular, and may be arranged in two rows, while the ear may be implanted too far back. At the present time, however, the custom of most authorities is to classify together under the term **Simple Primary Amentia** both this group and the larger one, which shows no abnormal configuration at all. Although there is no external abnormality, the brain, when examined, usually shows some of the pathological conditions we described in the first instance. This class, although placed last on our list, includes much the greater proportion of all cases of primary mental defect.

Both **Epilepsy** and **Paralysis** may occur as a complication of primary amentia. These cases must be distinguished from cases of secondary amentia, which are due to epilepsy, or to traumatism or disease occurring at or after birth, and affecting both the motor and intellectual areas of the brain.

We have now traced the prominent pathological conditions of the several typical varieties of primary mental deficiency—viz.:

1. **Defects of Special Areas and Partial Atrophies** (including **Word-deafness** and **Word-blindness**).
2. **Microcephalus.**
3. **Hydrocephalus** (primary).
4. **Hypertrophic.**
5. "**Mongol**" or "**Kalmuc**" type.
6. **Primarily neurotic** (including **Scaphocephaly**).
7. **Simple Primary Amentia.**

In the intermediate group of cases, which we have referred to as DEVELOPMENTAL, we include those

forms of mental weakness which evidence themselves at some crisis of development, such as the first or second dentition, or the epoch of puberty, but are traceable to an original defect of nervous constitution. Epiloia or tuberous sclerosis, and some eclampsic, epileptic, syphilitic, and post-febrile cases, may be thus classified.

Epiloia or Tuberous Sclerosis.—As long ago as 1880* Bourneville drew attention to a case which, at the autopsy, showed tumours in the kidney, in addition to rounded areas of sclerosis in the brain. Subsequently he and others described similar cases, and in 1908 H. Voght reviewed thirty cases, including three of his own. These were called " tuberose " or " hypertrophic " sclerosis. Till recently it was difficult, if not impossible, to separate this group as a clinical entity. The knowledge, however, that sometimes the cerebral and renal changes coexist with the skin affection known as " adenoma sebaceum " may enable us to diagnose the condition during life Hence the group designated by some **" Tuberous Sclerosis,"** and by Sherlock **" Epiloia,"** which we now place among the clinical types. Epiloia is a rare developmental disease, characterised by numerous rounded tumours scattered throughout the cortex of the brain; they may form projections on the surface, and also extend into the subjacent tissue. In addition to the tumours in the kidney, tumours may also be found in the heart (rhabdomyomata), and in the breast, thyroid, thymus, pancreas, and duodenum. The skin tumours (designated by dermatologists *adenoma sebaceum*) are seen chiefly on the face, round the nose and mouth, and on the forehead; they are " composed of little red nodules of

* *Archives de Neurologie*, 1880.

sebaceous gland tissue embedded in a vascular matrix." Dr. John Thomson,* to whom we are largely indebted for our description, says that the brain condition probably dates from the seventh month of fœtal life, or soon after it.

The convulsions which generally occur may begin in very early life, but are often deferred till late childhood. The child may show no sign of mental defect till after the convulsions have continued for some time.

Eclampsic and Epileptic Cases.—A large number of cases of mental deficiency are attributed by parents to **convulsions during dentition.** Thickened cerebral membranes, sometimes thickened skulls, are seen in many of these cases, with consequent atrophic changes in the brain substance. In cases of persistent **epilepsy,** with mental weakness, the same class of lesions is sometimes met with, though, of course, the *fons et origo mali* is to be looked for in the minute structure of the nervous tissue. As a matter of fact, there is no clear distinction between infantile convulsions and epilepsy. Most infants who have teething fits are of neurotic heredity, and a number of them are the victims later on of " idiopathic " epilepsy.

When epilepsy does exist from an early age in mentally deficient children, it should be regarded as a complication; it is a complication to which many defectives, especially lower grade cases, are liable. It is often associated with hydrocephalus, and is frequently noticed in syphilitic cases. In Mongolians it is comparatively uncommon. Sometimes epileptic seizures, occurring for the first time in children, are followed by signs of mental deficiency, although pre-

* John Thomson, M.D., " Congenital Mental Defect in Childhood," *Diseases of Children*, edited by Garrod, Batten, and Thursfield, London, 1913, p. 882.

viously the child was known to be of normal intelligence. These cases should be described as cases of secondary amentia, due to epilepsy. The exact classification of a particular case is often difficult. Idiopathic epilepsy cannot as a rule be diagnosed till after the primary dentition is complete, while it is sometimes impossible to differentiate slight mental defect from mere dulness or backwardness till six or even seven years of age. In cases of epilepsy, as in some other cases of mental defect, especially if there is any history of traumatism, a careful X-ray examination may show an injury to the skull or other pathological condition amenable to surgical treatment.*

It is important to examine the Sella Turcica and its immediate neighbourhood to see if there is any indication of an abnormal condition of the pituitary gland. Epilepsy sometimes follows bursting fractures of the base of the skull; in such cases the pituitary body is liable to be injured.† There is, however, another class of patient, according to Dr. George C. Johnston,‡ who, with an uneventful history, no injury, and previous good health, between fifteen and twenty-five years of age, begin to suffer from attacks of petit-mal, gradually increasing in severity and frequency. In such cases there are often changes in the Sella Turcica—viz., "for the most part an overgrowth of the anterior and posterior clinoidal processes, which, in addition to an increase in area and length, are slowly folded over and down upon the pituitary gland, enclosing it within a bony basket.

* See Plates XIII. and XIIIA., p. 108.

† Harvey Cushing, M.D., *The Pituitary Body and its Disorders*, p. 272. J. B. Lippincott Company.

‡ George C. Johnston, M.D., "The Pituitary Gland in its Relation to Epilepsy," *Surgery, Gynæcology, and Obstetrics*, April, 1914.

In addition to this process, which evidently is one requiring a considerable length of time for its accomplishment, there is very often noticeable a decided difference in the size of the pituitary fossa, and therefore of the gland itself. The fossa is thus largely or completely roofed over in some cases in which the shadows of the anterior and posterior clinoidal processes not only meet, but overlap. The frequency with which this condition has been found is quite striking. "In addition to this overgrowth of the clinoidal process, a large proportion of the cases show distinct increase in density in the bony tissues forming the roof of the orbit, the sphenoidal sinus, and the ethmoidal cells. In quite a number of cases the sphenoidal cells are decidedly blocked with newly formed bony tissue. This condition resembles, to a marked degree, the appearance of the skull in general acromegaly, and has been interpreted by us as a localised acromegaly." Dr. Johnston goes on to say that if in the skiagrams of cases in this class the clinoidal processes do not show, it is probably hypopituitarism, due to hypophysial struma with enlargement of the gland and pressure atrophy of the processes. He suggests that we want an operation for the removal of one or both processes in choked pituitary before the gland has suffered too long.

Surgical treatment is sometimes useful in cases of **Status Epilepticus,** which may be due to a localised meningitis serosa externa. Dr. Leonard Guthrie* states that "a number of such cases in which the subarachnoid cisterns have been opened and drained, with great relief to the patient, have recently been recorded."

* *Diseases of Children*, edited by Garrod, Batten, and Thursfield, 1913, p. 714.

In connection with the pathology of epilepsy, reference must be made to the work of Dr. Alfred Gordon,* of Philadelphia. Dr. Gordon assumes that "the pathogenesis of the malady presupposes a constant, or at least a frequent, formation in the organism of the epileptic individual of unusually severe or of specially toxic elements, which cause cerebral irritation, manifesting itself in convulsive seizures." After referring to Ceni's and Donath's investigations upon the chemical constitution of the blood-serum and the cerebro-spinal fluid in epilepsy, he states that other writers have shown that there is a marked toxicity of the cerebro-spinal fluid in epilepsy. Dr. Gordon himself noticed that the blood accidentally in the cerebro-spinal fluid drawn from an epileptic underwent hæmolysis; he also noticed that, when the patient improved and the seizures became very mild and rare, this phenomenon disappeared. He found, further, that one drop of blood from the finger of one patient in fifteen drops of cerebro-spinal fluid from another undergoes hæmolysis, and *vice versa*; but one drop of blood from the finger of a patient in that patient's own cerebro-spinal fluid remains coagulated for days. This meant that the cerebro-spinal fluid of each patient contained elements antagonistic to the other's blood, but not to that from the same subject. He therefore withdrew 30 c.c. of cerebro-spinal fluid from each of two epileptics, and injected into the arm of each 3 c.c. of the other's fluid. Dr. Gordon treated four cases in this way, and in all there was a great improvement; yet all of them had had bromide before without benefit. The fact that in one of the four cases no cerebro-spinal fluid was withdrawn proved

* Alfred Gordon, M.D., *New York Medical Journal*, 1914, xcix., p. 10.

that the improvement could not be attributed to the withdrawal of cerebro-spinal fluid.

As will be fully explained in the next chapter when discussing etiology, although one investigation* sets forth that in nearly 50 per cent. of cases of epilepsy in children the Wassermann reaction showed a syphilitic infection, and that when the investigation is extended to the families giving a negative or doubtful reaction the percentage is higher still, we do not consider that it has yet been proved that syphilis is the most frequent cause of epilepsy.

In regard to **Syphilitic** cases, our ideas have been modified in recent years by the careful investigations of Dr. Mott, and by the help of the Wassermann reaction. In our last edition we suggested that the number of cases of mental defect due to syphilis was larger than was generally realised. Now, as will be explained in discussing the etiology in the next chapter, we know that syphilis is responsible for a considerable percentage of cases, many of which show neither the ordinary syphilitic stigmata, nor any evidence of a gross lesion in the central nervous system. This is not surprising, considering that the "gross changes in the brain which are known to be due to congenital syphilis are not compatible as a rule with a continuance of life."† Cases of mental defect in which the causal relation with syphilis is determined only by the Wassermann reaction or by an

* Kate Fraser, M.B., and H. Ferguson Watson, M.B., "The Rôle of Syphilis in Mental Deficiency and Epilepsy: a Review of 205 Cases," *The Journal of Mental Science*, October, 1913.

† H. R. Dean, M.B., "An Examination of the Blood-Serum of Idiots by the Wassermann Reaction," *Proceedings of the Royal Society of Medicine, Neurological Section*, vol. iii., June, 1910, p. 117.

PLATE VIII.

INHERITED SYPHILIS.

To face page 70.

investigation of other members of the family may be classed as *parasyphilitic.*

It is important to remember that congenital syphilis affecting the nervous system of infants and young children may "give rise to a meningitis, a hydrocephalus, to an endarteritis, to gummata, to a juvenile tabes, and to a juvenile general paralysis of the insane."*

As regards the particular type of mental defect that may result from congenital syphilis, Dr. Plaut,† working in Kraepelin's clinique, showed that in cases of imbecility with motor paralysis, syphilis played an important, though previously unsuspected, part. This has since been confirmed by Dr. Leslie Gordon,‡ among others. The relation of syphilis to hydrocephalus is well known. Apart from these types, congenital syphilis, according to Dr. Gordon, "is as likely to cause a simple, uncomplicated form of congenital mental defect as it is to cause any particular type"—a statement which is in accordance with our own experience.

There is one type of mental defect universally admitted to be due to syphilis in every case—viz., **Juvenile General Paralysis of the Insane.** In these cases mental deterioration does not usually show itself until the period of the second dentition, though Dr. Mott§ says the mental deficiency may date from birth. These cases progress in much the same manner

* F. E. Batten, M.D., *Diseases of Children*, edited by Garrod, Batten, and Thursfield, 1913, p. 850.

† Plaut, *Die Wassermannsche Serodiagnostik der Syphilis*, Jena, 1909.

‡ J. Leslie Gordon, M.D., "The Incidence of Inherited Syphilis in Congenital Mental Deficiency," *Lancet*, September 20, 1913.

§ F. W. Mott, M.D., *Archives of Neurology*, 1898, i. 250.

as general paralysis of the insane in the adult, death occurring in a few years after the onset of the symptoms. A full description of these cases will be found in the next chapter. At the autopsy we find thickening of the cerebral arteries (from endarteritis) and of the meninges, with marked atrophy of the convolutions; the sulci are wide, the ventricles dilated, the ependyma granular, and the brain wasted as a whole (Plate VIII. represents this type). "On microscopical examination, the fibres of the cortex have to a large extent disappeared, and there is almost complete absence of the tangential fibres of the cortex. The cells of the cortex show various stages of chromatolysis; many have already disappeared or been replaced by calcareous deposits. The pyramidal tracts, and in some cases the posterior columns of the cord, show degeneration."*

Amongst other pathological conditions sometimes met with, dating from early life, are those resulting from meningeal hæmorrhage occurring from undue pressure during parturition, the injurious element being, however, prolonged pressure rather than instrumental interference. In these cases atrophic changes take place in the Rolandic area, and as a consequence ensue spastic contractions of the limbs (bilateral or unilateral), with inco-ordination and often "athetoid," "choreic," or "perverse" movements. The intellectual deficiencies of children suffering from **"Birth-palsies"** are more apparent than real, the intelligence which they possess being masked by their physical infirmities.†

Of clearly SECONDARY cases two main divisions

* F. E. Batten, M.D., *Diseases of Children*, edited by Garrod, Batten, and Thursfield, 1913, p. 851.

† See Plate IX., Figs. 1 and 2.

PLATE IX.

FIG. 1.—GIRL (R.A.A.).

FIG. 2.—BOY, SHOWING ATHETOSIS (R.A.A.).

BIRTH-PALSY.

To face page 72.

PLATE X.

FIG. 1.

FIG. 2.

OXYCEPHALIC CASE.

To face page 73.

are **Traumatic** and **Post-febrile,** and in each the characteristic lesions are the products of inflammatory processes. Thickened and adherent membranes, following meningeal inflammations and interfering with the due supply of blood to the cerebral cortex, have been noticed in a considerable number of cases; whilst porencephalus,* which may be considered in some instances to be the terminal condition of an acute inflammatory lesion, has not infrequently been observed. It must be noted, however, that some of the cases in which sclerosis is found are not strictly secondary, as was at one time supposed, but belong to the "Tuberous Sclerosis" group, a developmental type.

Among the cases probably due to meningitis is a peculiar form of enlargement, in one direction at least, of the skull, known as **Oxycephaly,** or Tower skull (French, *Tête à tour;* German, *Thurmschädel*). This type is not frequently met with, and has seldom been described from the mental aspect. It has sometimes been confused with other types. For most of the descriptions we are indebted to ophthalmic surgeons, as the ocular defects, which are usually the most marked, have attracted more attention than the mental. Indeed, Patry states that the intelligence is usually normal. In some cases, however, there has been marked mental defect. It is probable that slight mental defect would be found in most cases if the investigations were made by an expert. A fairly typical case was shown by Dr. Potts at the meeting of the Society for the Study of Disease in Children in Birmingham, in June, 1908, two illustrations of which we now reproduce.† This boy required education in a special school, though

* See Plate II., Fig. 1, p. 55. † See Plate X.

he was not very weak mentally. Contrary to what is usual, he had no ocular defect. The case described by Dr. Rosa Ford in the *Ophthalmoscope*, April, 1907, was also mentally defective. The condition has been well described by Patry* in a monograph published in 1905, which dealt with ten cases of his own, and, in addition, with the records of fifty-eight published cases. Typical cases are very striking. There is a dome-shaped mound rising up from the forehead, separated from the temples by shallow furrows; the supra-orbital ridges are absent, and the eyes proptosed and large. At the same time there is an atrophy of the optic nerve, post-neuritic in type. The exophthalmos is due to malformation of the orbit, the upper wall of which slopes down towards the floor at a more acute angle than in the normal. Many of these patients suffer greatly from headache; some also from fits during childhood. Patry states that the cranial deformity commences in the first year of life, and is due to premature synostosis of the coronal and frontal sutures. This theory receives considerable confirmation from the deep convolution markings found in the vault, the expanding brain being driven up into the vertex. Hence the suggestion that these cases would be benefited by craniectomy. Patry endorses Virchow's view that the primary cause both of the cranial deformity and the optic neuritis is a meningitis.

Emotional shock, such as fright to a young child confined in a dark cellar, or from the bite of a dog, is sometimes assigned as a cause of mental defect.

* *Contribution à l'Étude des Lésions Oculaires dans les Malformations Craniennes spécialement dans l'Oxycéphalie*, par André Patry. Paris, 1905.

The experimental investigations of Dr. G. W. Crile* have shown us that shock and fright are followed by definite changes in the brain cells, as shown by swelling and rupture of the nuclei, the cells being hyperchromatic during fright, and exhausted after. It is not unreasonable to suppose that certain cases never return to their normal state. Possibly, too, **trophic** changes, brought about by the sympathetic system, are important factors. At any rate, cerebral atrophy, as if from arrested development, is found in some of these cases. We recognise also **Toxic** cases, such as those of infants drenched with alcohol or narcotics, in which the interference with the proper nutrition of the nerve elements, and the poison introduced, may have far-reaching effects. The dangers to infants from alcohol are very real and very frequent, as all readers of Mr. George R. Sims' spirited article, "The Cry of the Children," reprinted from the *Tribune*, must admit. Fortunately, the Children Act now excludes infants and children from public-houses, but much of the evil still remains. There is complete ignorance in some classes of the harm done to nursing mothers by the taking of alcohol. The time, too, is more than ripe for some legislation which will make it impossible to advertise as safe for children proprietary medicines which contain morphia and other narcotics.

Under the title of **Amaurotic Family Idiocy** some curious and hopeless cases of infantile cerebral degeneration, with symmetrical changes at the macula lutea, commencing about three months after birth, and observed almost exclusively among Jewish children, have been described by Sachs of New York and other

* George W. Crile, M.D., "Anæsthesia and Anoci-Association," *Surgery, Gynæcology, and Obstetrics*, June, 1913.

American authorities, and by Mr. Waren Tay and Drs. Kingdon and Risien Russell* in this country. The first abnormalities noticed are weakness of the muscles of the back and neck, and imperfection of sight. With the ophthalmoscope there is seen in the macula an oval whitish-grey patch, with softened edges slightly raised above the general surface of the retina. The *fovea centralis* appears as a dark cherry-red spot in the centre of the patch. Later on there is optic atrophy, and complete blindness. The senses of taste and hearing are preserved, the latter being particularly acute. The muscles become weaker and weaker, the whole body becoming involved. There is marked emaciation, and, in the final stages, rigidity of the extremities, with retraction of the head. There is no fever. The thoracic and abdominal organs are normal. The cerebro-spinal fluid shows practically no change. Death usually occurs in less than two years, from pneumonia or cardiac failure. The cause is possibly a toxin, causing degeneration of the cortical neurones, the optic nerves, and the pyramidal tracts throughout their whole course. Dr. Poynton,† who has also written on the subject, after seeing four cases and studying one by modern neurological methods, ascribes the condition to "some inherent bio-chemical property of the protoplasm of the cells." He states that the disease is primarily one of the interfibrillar protoplasm of the cells, and describes the changes in the nerve cells as "swelling of the cell body with frequently gross alteration in shape; disappearance of Nissl bodies; excentric position of nuclei; vacuolisation of the protoplasm."

* *Med. Chir. Trans.*, vol. lxxx., p. 87.

† "Amaurotic Family Idiocy," *Brit. Med. Journal*, May 8, 1909, p. 1106.

In one case Dr. Mott had the blood and cerebro-spinal fluid examined for the Wassermann reaction, with a negative result, thus confirming the clinical experience that the disease is not a result of syphilis.

The condition just described must not be confused with another form of cerebral degeneration seen in older children, known as **Cerebral Degeneration with Symmetrical Changes in the Maculæ.** This also is a familial disease, and is thought to be partly due to consanguinity of the parents. In some cases syphilis has been a factor, but has not been in evidence in typical cases of the disease. Children who are affected are normal in early life, and make a good start at school. At the age of six or seven they begin to be difficult, fail to advance, and lose the power of reading ; they do not see well, and it is noticed that the head is turned to the side, presumably in an effort to see in spite of the central scotoma which is believed to be present. There is obvious mental deterioration, with the development of dirty habits, but no muscular weakness in the early stages. The distinguishing feature is the association of mental failure with a curious pigmented condition round the maculæ. The disease slowly progresses, the child dying in seven or eight years, usually from some intercurrent disease.

Glandular Inadequacy.—The cases just considered are due to the presence of toxins. We now pass to an important group which are due to the absence of a necessary element from the economy. Inadequacy of the thyroid and other glandular secretions are frequent causes of serious maldevelopment, often associated with mental defect. The best known of these conditions is **Cretinism,** the full development of

which usually takes place after birth, producing mental deficiency. Cretins are divided into two classes—*endemic* and *sporadic*. **Endemic** cretins are met with in goitrous districts, and in affected families; in this class the thyroid is often enlarged, though functionally inactive. **Sporadic** cretins are met with in all parts of the world; the thyroid is atrophied or altogether absent.

Intra-uterine **Cretinism** fully developed results usually in the death of the fœtus, which displays a

FIG. 1.—AMERICAN CRETINS, AGED 34 AND 24 YEARS.

(J. Moorhead Murdoch, M.D.)

curious stunted conformation of the body, with redundant skin, thickened cranial bones, and imperfectly formed face. The essential lesion is absence or atrophy of the thyroid gland, and there are often found fatty tumours in the supraclavicular regions. Cases of sporadic cretinism usually met with in this country differ from the above in the fact that the child appears normal at birth, but the characteristic

FIG. 2.—"SARAH," AGED 22 YEARS.
(Formerly in Royal Albert Asylum.)

conformation and mental hebetude are gradually developed. The condition can usually be recognised at six months, though in rare instances it is not possible to do so till much later, sometimes not even till the child is six or seven years of age. Progressive atrophy of the thyroid brings about a dwarfing of the physical growth and of the mental powers; if the patient arrives at adult life, he still retains the bodily and mental stature of a child (see Plate XI., Figs. 1 and 2).

At this stage we may consider the condition of **Infantilism,** some varieties of which are due to disturbances of the functions of glands of internal secretion, and which may be associated with mental defect. The term merely denotes a group of symptoms. The essential feature is that the genital organs remain immature, while just as the primary sexual characteristics of adult life fail to appear at the proper time, so also do the secondary sexual characteristics of body and mind. In some cases the intelligence is fairly normal, but generally it is weak and childish. Infantilism is not as a rule a prominent feature of the mentally defective, except in some cases of microcephalus, mongolism, and severe spastic diplegia. Dr. John Thomson* classifies the cases under three headings. The first group, which he calls the *Idiopathic,* shows no serious general or local disease. In the second, or *Cachectic,* serious general disease or poisoning exists. The most common disease is chronic tuberculosis, next syphilis; malaria, leprosy, and some of the common infective diseases, have also been blamed, as has also any form of heart disease that begins early in life, and causes

* "Infantilism," *System of Medicine,* Allbutt and Rolleston, vol. iv., part i., p. 486.

much interference with the general circulation. One type, now well known owing to the writings of Dr. Herter,* is associated with intestinal disorder, usually with cœliac disease. In many cases of infantilism polyuria has been noticed; sometimes this has been due to diabetes insipidus; in other cases, however, as Dr. Leonard Parsons† and others have shown, the primary lesion is interstitial disease of the kidneys. The third group depends on gross lesions or defects of important internal organs. The organ most often at fault is the thyroid gland, and Dr. Thomson points out that one type of the condition constitutes the mildest degree of cretinism, with symptoms so slight that the real cause is often overlooked. He brings forward evidence, however, to show that defective action of other internal organs may produce the same symptoms. The account of two cases in which the pancreatic secretion was proved to be in abeyance, and in which development resumed its normal course on the regular administration of pancreatic substance, is particularly interesting. Dr. Sajous has recently called attention to the frequent association of aplasia of the thymus with defects of development, and its absence in cases of amentia, as recorded by Bourneville, Morel, and others.‡

Pituitary Infantilism is now a well-defined variety; the possible connection between hypopituitarism and some forms of epilepsy has already been discussed. It has also been suggested that sometimes the supra-

* C. Herter, *Trans. Assoc. Amer. Phys.*, 1908, xxiii., p. 260.

† Leonard Parsons, M.D., "Infantilism associated with Chronic Interstitial Nephritis," *Lancet*, September 2, 1911

‡ *New York Med. Journ.*, Jan. to Nov., 1915 ("Hema denology").

renal glands are at fault. Dr. A. E. Garrod* refers to a case in which a marked advance in development followed the administration of suprarenal tablets. In some cases, such as those described by Dr. Hastings Gilford,† under the name of "ateleiosis," the underlying cause is quite obscure.

Another kind of defect which may have serious consequences is **Sense-deprivation.** When this is associated with primary mental defect, as not infrequently happens, the difficulties of training are greatly increased; if both sight and hearing are absent, attempts at education must inevitably end in failure. If, however, the mental defect is due to the sense-deprivation, then proper education will remove that defect, provided it is begun at an early age. Should it be unduly delayed or altogether neglected, permanent secondary amentia may be the result.

In conclusion, we may briefly sum up the various secondary types of mental weakness, the pathological circumstances of which we have described, as follows:

A. DEVELOPMENTAL CASES:

1. **Epiloia,** or **Tuberous Sclerosis.**
2. **Eclampsic.**
3. **Epileptic.**
4. **Syphilitic** (inherited).
5. **Paralytic** (spastic, etc.).

B. ACCIDENTAL OR ACQUIRED:

1. **Traumatic.**
2. **Post-febrile** (including **Oxycephaly**).

* A. E. Garrod, *Diseases of Children*, edited by Garrod, Batten, and Thursfield, p. 583.

† Hastings Gilford, *The Disorders of Postnatal Growth and Development*, 1911.

3. **Emotional.**
4. **Toxic** (including **Amaurotic Family Idiocy** and **Cerebral Degeneration** with **Symmetrical Changes in the Maculæ**).
5. Due to **Nutritional Defect** (including **Cretinism** and **Infantilism**).
6. Due to **Sense-deprivation.**

We shall find that these divisions, together with those of the primary types previously given (p. 64), will be serviceable in considering points in the etiology, diagnosis, and prognosis of mental deficiency, which we shall proceed to discuss in the next chapter.

CHAPTER V

ETIOLOGY, DIAGNOSIS, AND PROGNOSIS

IN connection with mental defect in children there is no more interesting or important subject than its ETIOLOGY. At one time this was an obscure and difficult problem, but such considerable advance has been made in our knowledge in recent years that we are now in a position to express a more decided opinion than heretofore, and to say that in primary amentia a neuropathic inheritance is the most effective factor. In a limited number of cases other influences are undoubtedly accountable, but the large majority of cases of primary amentia originate in this way, and even in secondary amentia a morbid heredity sometimes has an important influence in deciding the issue. These views were foreshadowed in 1892 by Dr. Shuttleworth, who then recorded his statistics (in conjunction with those of Dr. Fletcher Beach) in an article in Hack Tuke's "Dictionary of Psychological Medicine," in which 1,200 cases observed at the Royal Albert Asylum, and 1,180 cases at Darenth Asylum, were collated. **Hereditary mental weakness** (insanity or imbecility) was recorded in 21·38 per cent. of cases, but in addition **epileptic** or **neurotic inheritance** showed a percentage of 20, making a total of 41·38 per cent. of cases which could be tabulated as having a **neuropathic inheritance,** a proportion which tends to increase with further knowledge of the antecedents.

Dr. Caldecott of Earlswood Asylum found that over 70 per cent. of his patients have neuropathic antecedents. "In Germany, Koch came to the conclusion that it accounted for 60 per cent. of cases. In Switzerland (Canton of Berne), the census of 1893 showed that heredity was present in 55 per cent. of idiots; whilst in Norway, Ludwig Dahl found it to occur in 50 per cent. of cases."* It is important to remember that in Dr. Shuttleworth's inquiry, as in most of the earlier ones, no house-to-house visitation was made in order to elicit additional information, and to examine both the parents. When this procedure has been adopted, and searching inquiries made into the family records, convincing evidence of the effects of a morbid heredity has always been obtained. One of the most careful inquiries on these lines was conducted by Dr. Tredgold,† who studied a large number of cases in the pauper asylums of London, and in 150 obtained "full particulars of the family for at least three, and sometimes four, generations." He traced a neuropathic inheritance in 82·5 per cent. All those who have conducted an inquiry of this kind will agree with Dr. Tredgold that the reason why he obtained a considerably higher percentage than most other observers is "entirely a question of the method adopted." "Again and again," he says, "have I discovered by a little questioning a well-marked history of insanity, of which no record whatever existed in the case-books. The taking of a reliable family history involves much time and trouble. Several members of the family must be

* A. F. Tredgold, *Mental Deficiency*, 1914, p. 40.

† A. F. Tredgold, *Report and Evidence of the Royal Commission on the Care and Control of the Feeble-minded*, 1908, vol. i., p. 396.

seen, and their confidence must be gained before anything like the true state of affairs can be elicited. It is not only that the relatives are averse from giving information upon what they regard as their private affairs to a complete stranger, but that very often they do not really know until they have talked the matter over amongst themselves." We may add that it is extraordinary how ignorant even well-educated people often are as to the records of illness and causes of death of their forbears. In the case of insanity and consumption, in particular, it is a common practice to gloss over the real nature of the trouble, and keep many members of the family in complete ignorance.

Dr. Tredgold's statistics have been amply confirmed by the inquiries in America of Dr. Goddard, the Director of the Research Laboratory of the Training School at Vineland, New Jersey, for Feeble-minded Girls and Boys. At this institution a laboratory and Department of Research for the study of feeble-mindedness was opened in September, 1906; since 1910 it has employed *field-workers*. "These are women highly trained, of broad human experience, and interested in social problems. As a result of weeks of residence at the Training School, they become acquainted with the condition of the feeble-minded. They study all the grades, note their peculiarities, and acquaint themselves with the methods of testing and recognising them. They then go out with an introduction from the Superintendent to the homes of the children, and there ask that all the facts which are available may be furnished, in order that we can know more about the child and be better able to care for him, and more wisely train him.

"Sometimes all necessary information is obtained

from the one central source, but more often, especially where the parents are themselves defective, many visits to other homes must be made. Parents often send the field-worker to visit near and distant relatives, as well as neighbours, employers, teachers, physicians, ministers, overseers of the poor, almshouse directors, etc. These must be interviewed, and all the information thus obtained must be weighed and much of it verified by repeated visits to the same locality, before an accurate chart of the particular child's heredity can be made." *

As a result of this work, Dr. Goddard has been able to study more than 300 families. His conclusions are that " Feeble-mindedness is hereditary, and transmitted as surely as any other character." Dr. Goddard's researches have, however, gone further than this, for he claims to have shown that, putting mongolianism on one side, mental defect is a Mendelian *recessive* character. As a consequence, not every person who carries the taint shows it, as would happen if mental defect were a Mendelian dominant characteristic; many people unconsciously carry the taint in their germ-cells without showing any sign; it only becomes evident in certain members of the families where both parents have a mentally defective heredity. " According to a recent calculation, made in one of the bulletins of the Eugenics Record Office, about one-third of the population in the United States is thus capable of conveying mental deficiency, the 'insane tendency,' epilepsy, or some other defect." †

* H. H. Goddard, Ph.D., *The Kallikak Family : a Study in the Heredity of Feeble-mindedness.* New York: The Macmillan Company, 1912. Also *Feeble-mindedness : Its Causes and Consequences.* New York: The Macmillan Company 1914.

† C. W. Saleeby, M.D., *The Progress of Eugenics,* p. 181.

It is not necessary for us to elaborate the details of Mendelism, as there are now so many excellent treatises on the subject; for the benefit, however, of those of our readers who are not thoroughly familiar with its principles, we may briefly state how it works out as regards mental defect in various sets of cases:

1: If two normal parents, both of whose families are free from mental defect, have children, all those children will be normal; and, in addition, the children will be incapable of transmitting mental defect to their offspring.

2. If a normal person whose family is quite free marries either a mentally defective person or one who, though normal, is a carrier of the defect, then, although all the children will be normal, a certain number will be carriers of the taint. If the second parent is actually defective, half the children will carry it; but if the second parent merely carries it, without showing it, only one in every four of the children will carry the defect in its germ-cells.

3. If both parents are apparently normal, and yet both carry the taint, then one in every four of their children will be defective, and, in addition, two out of every three of the normal children will carry the defect, while one only will be entirely free.

4. If both parents are defective, every one of the children will be defective.

In human families, which are limited in size, the numbers of those who are defective and those who are not seldom corresponds exactly with the table just given; the results of Mendelian inheritance can only be exact when the families are large, as happens in the vegetable kingdom. Yet many of Dr. Goddard's records approximate closely to the conditions of a Mendelian recessive.

Further confirmation from other workers is required before this theory can be accepted unconditionally; still, the work of Dr. Goddard has been so thorough and extensive, and the explanation fits in so well with generally observed phenomena, that authority is attached to his conclusions.

The work done in the Galton Laboratory by Professor Karl Pearson and his collaborators, the writings of Whetham and many others, have established the importance of heredity in regard to mental defect. One argument of which much was made by the school who attributed everything to environment was the results of matings in the class of cases described in heading 3 in the table above—that is, those instances when two normal parents have a certain proportion of defective children. At one time it was difficult to reconcile this with the hereditary principle, but, according to Goddard's theory that mental defect is a recessive Mendelian quality, this, so far from disproving the importance of heredity, goes a long way to establish it. The most important evidence, however, of the powerful effect of heredity is afforded by the fourth condition described above; this is absolutely true. In the year 1909 the statement was first made that two mentally defective parents never have any but defective offspring; in the six years that have since elapsed this statement has never been contradicted.

It is necessary to point out that if mental defect is a Mendelian recessive character, segregation cannot stamp it out in a generation; the good effect of segregation will only gradually become apparent. The Mendelian theory explains the deep-rooted objection to cousin marriages, the danger being that if one parent carries mental defect in his germ-cells, the

other parent will very likely do so too; the results of such a union are sometimes disastrous. The Mendelian theory enables us also to understand how a parent may have only normal children after one marriage, and defective children after a second marriage; the writer has recently seen a normal woman who had four normal children by her first husband, but after a second marriage four children, of whom only one was normal, while one was defective and two died in infancy. The explanation is that the mother is a carrier of mental defect, and that the first husband was free, while the second is a carrier. The history of the Kallikak family, unearthed by the energy of Dr. Goddard, shows how a man by different matings may found two entirely different types of family.

We must not, however, pursue this interesting aspect of the subject further, but must proceed to say that, although we attach the greatest importance to heredity, we believe that the **environment** does exert an influence; in considering various factors that one sometimes finds to be precursors of mental defect, we shall later on give specific examples where the environment was undoubtedly to blame. Speaking generally, we accept the doctrine that "like breeds like," and admit that the germ-cells are wonderfully protected from injurious influences. There are, however, many observations as regards both the vegetable and animal kingdoms which show that external influences may leave a mark. For instance, Macdougal,* experimenting with the evening primrose, showed that by injecting certain chemical substances into the immature ovaries, he got seeds which afforded plants

* *Report of the Department o Botanical Research*, Fifth Year-Book, Carnegie Institute, Washington, 1907, p. 119.

some of which departed widely from type; in this way he was able to establish new varieties. Tower,* experimenting with a certain species of beetle, observed that if shortly before maturation of the germ-cells he subjected the beetles to intense environmental change (cold and humidity), he obtained offspring widely different from the parents, and the results appeared to be permanent, or at least heritable through further generations. The wing-cases of the normal beetle showed one pattern, those of the progeny of the cooled beetles showed another. When crossed, these altered forms bred true, nor did they lose their acquired characters in subsequent generations. Sumner† also proved that influences primarily affecting the body can secondarily affect the germ-cells. He found that similar broods of young mice brought up, one in a warm temperature (21° C.), and the other in a cold temperature (5° C.), differ considerably; the mean length of tail, feet, and ears of those brought up in the warm atmosphere is greater, and the young of these two groups, though reared in a common room, subsequently present the greater or lesser length of tail, foot, and ear acquired by the parent. Again, Carrière‡ inoculated guinea-pigs, both male and female, with the toxins and soluble products of tubercle bacilli, and found that the numbers of the litters were reduced and the number of the stillborn increased. Lustig§ showed similar results with chickens; there was diminished fertility,

* *An Investigation of Evolution in Chrysomelid Beetles of the Genus Leptinotana* (publication of the Carnegie Institute), Washington, 1906.

† *Archiv für Entwickelungsmechanik*, 30, 1910.

‡ *Archives de Médecine Expérimentale*, 12, 1900, p. 782.

§ *Centralblatt für Pathologie*, xv., 1904, p. 210.

an increased number of monstrous births, and poor vitality of the surviving offspring.

Such observations as these justify the contention of Dr. Beard,* in his "Study of the Morphological Continuity of Germ-Cells as the Basis of Heredity and Variation," that food, climate, toxins, disease, natural phenomena of all kinds, can affect the corresponding characters of any germ-cell. Dr. Beard demonstrated that at the time at which the determiners separate out of the germ-cells, the reaction to the influences of the environment is a cause of variation and varieties; healthy influences promote variation of a good type, unfavourable ones tend towards a bad type. More than half a century ago records were published proving that poisons such as lead, mercury, alcohol, malaria, smallpox, or tubercle, in very concentrated doses are possible causes of mental defect in the human family. Constantin Paul† stated that of 32 pregnancies in which the husband alone was exposed to lead in his work, there were 12 abortions; and of the 20 children born, 8 did not survive the first year, 4 died in the second, and 5 in the third, so that only 3 out of 32 lived beyond the third year. He also showed, as Roque, Sir Thomas Oliver, and others have done since, that epilepsy, idiocy, and imbecility frequently occur in the children of workers in lead. Lizé‡ supplied identical data regarding workers exposed to the fumes of mercury. We could quote many more facts such as these, which prove

* J. Beard, "A Morphological Continuity of Germ-Cells as the Basis of Heredity and Variation," *Review of Neurology and Psychiatry*, vol. ii, 1904.

† Constantin Paul, *Archives Générales de Médecine*, 15. 1860, p. 513.

‡ Lizé, *Union Médicale*, 1862, p. 106.

that variation is sometimes due to the environment and mode of life of the parent, and that variation may take the form of mental defect.

When investigating at Stoke-upon-Trent for the Royal Commission on the Care and Control of the Feeble-minded, Dr. Potts found several cases of abnormally backward children. In several instances these children, after being almost hopeless at school for many months, unexpectedly improved, and subsequently developed as well as their normal fellows. He attributed the condition partly to the mothers going out to work and leaving the children shut up for many hours, ill supplied with food, and with no one to talk to or play with. When such children come to school, they sometimes actually have to be taught to talk, and much else that a child should learn at home.

It is time now to discuss certain special factors which are sometimes accountable, in whole or in part, for mental defect. We must first point out, however, that it is not logical to attribute to a single specific cause, other than a direct hereditary tendency, the majority of cases met with, inasmuch as on investigation we often discover several contributory factors. So strong, indeed, is the tendency of Nature to revert to a healthy type, that the solitary infraction of physiological law is not often visited with the penalty of mental abnormality; if we only look back far enough, we shall probably find that such a culmination is reached by the gradations of repeated transgressions. Not every drunken parent procreates an idiot; but when inherited nervous instability from this or other causes is intensified in the next generation by injudicious marriage, or by unfavourable environment, or by a very severe infectious illness

shortly before conception, instances of mental degeneracy are apt to occur.

We shall first consider **Inherited Syphilis.** This has recently been shown to act more frequently as a cause than was suggested by the earlier records. Dr. Mott has studied for several years the effects of syphilis, acquired and congenital, on the nervous system, and arrived at the conclusion that it is an active agent in the production of congenital weakness and the degeneracy that accompanies it. He has demonstrated that "the measure of the effects of syphilis in the production of feeble-mindedness and epilepsy should not be estimated only by the cases in which there are visible and characteristic signs of syphilis on the body, for he has observed one member of a family with syphilitic notched teeth, another without any external sign, but with severe visceral and brain disease, while a third was an imbecile. He has also seen many other examples pointing to the same conclusion." Dr. Mott* further states that "it may be thought that because syphilis of the parents produces sterility, miscarriage, and abortion, its dangers are greatly minimised, but it cannot be doubted that if the poison is sufficiently strong to kill the embryo either before or shortly after birth, it must have a devitalising effect on the offspring that survives. Though hereditary neurosis or psychosis greatly increases the liability of the syphilitic poison to affect the nervous system, yet in numbers of the cases there was no pre-existing neuropathic family history—in fact, sometimes the syphilitic poison appeared to induce a neuropathic condition in the offspring." Dr. Mott has also shown that in some cases

* F. W. Mott, *Minutes of Evidence taken before the Royal Commission on the Care and Control of the Feeble-minded*, vol. i. p., 453.

the blindness, deafness, mental deficiency or disease does not manifest itself till between eight and puberty.

More recently confirmatory evidence of the production of mental defect by inherited syphilis has been obtained by means of the Wassermann reaction. The results obtained, however, by different investigators differ so much that we cannot regard any of them as final. The table on p. 95, showing the percentage of cases of congenital mental defect, found to give a positive Wassermann reaction by some of the workers, justifies this statement.

Well might Sir H. Bryan Donkin say that, "even assuming that the Wassermann process may be regarded as an absolute scientific test for the presence of syphilitic infection, it is clear that at present no positive conclusion as to the relations of mental defect to syphilis can be drawn from any accounts hitherto published"* The discrepancies in the results obtained are partly due to the different antigens and degrees of dilution employed by different investigators. The age of the mentally defective person also affects the result, a larger number of positive reactions being obtained in early life. But even if the largest percentage yet obtained were proved to be correct, it would not shake our belief in the outstanding importance of a morbid heredity. It need prove nothing more than that the mentally defective, including, of course, slight cases, are singularly lacking in moral control and ability to take care of themselves. Our verdict at the present time is that, as regards the causation of mental defect, syphilis is a sufficient factor in itself, and often has a deciding influence when there is a morbid heredity or other unfavourable factors.

* Sir H. Bryan Donkin, M.D., *Lancet*, March 14, 1914.

PERCENTAGE OF POSITIVE REACTIONS TO THE WASSERMANN TEST OBTAINED BY VARIOUS WORKERS.

Thomsen, Boas, Hort, and Leschly[1] ..	1·5 per cent.
Dawson[2]	4·0 ,,
Kellner, Clemenz, Brückner, and Rautenburg[3]	7·4 ,,
Lippmann (first series)[4]	8·9 ,,
Rees Thomas[5]	10·0 ,,
Lippmann (second series)	13·2 ,,
Atwood[6]	14·6 ,,
Dean[7]	15·4 ,,
Gordon[8]	16·5 ,,
Kröber[9]	21·3 ,,
Raviart, Breton, Petit, Gayet, and Cannae[10]	30·8 ,,
Schölberg and Goodall[11]	32·6 ,,
Chislett[12]	50·0 ,,
Fraser and Watson[13]	60·0 ,,

[1] Thomsen, Boas, Hort, and Leschly, *Berliner Klinische Wochenschrift*, 1911, Band xlviii., p. 891.

[2] Dawson, *Journal of Psycho-Asthenics*, Faribault, Minnesota, December, 1912.

[3] Kellner, Clemenz, Brückner, and Rautenburg, *Deutsche Medicinische Wochenschrift* (Leipzig und Berlin), 1909, p. 1827.

[4] Lippmann, *Münchener Medicinische Wochenschrift*, 1909, Band lvi., p. 2417.

[5] Rees Thomas, *Lancet*, April 4, 1914.

[6] Atwood, *Journal of American Medical Association*, Chicago, vol. lv., p. 464.

[7] Dean, *Proceedings of the Royal Society of Medicine*, Neurological Section, vol. iii., No. 9, July, 1910.

[8] Gordon, *Lancet*, September 20, 1913.

[9] Kröber, *Medicinische Klinik*, Vienna, 1911, Band vii., p. 1239.

[10] Raviart, Breton, Petit, Gayet, and Cannae, *Revue de Médecine*, Paris, 1909, an. xxviii., p. 840.

[11] Schölberg and Goodall, *Journal of Mental Science*, vol. lviii., No. 237, April, 1911, p. 247.

[12] Chislett, *Ibid.*, vol. lvii., No. 238, July, 1911, p. 499.

[13] Fraser and Watson, *Ibid.*, vol. lix., No. 247, October, 1913, p. 640.

A phthisical family history has often been blamed in the past for mental defect; at the present time there is a difference of opinion as to how far tubercular disease acts in its causation, some authorities believing that it acts directly, while others regard it rather as a concomitant of degeneracy to be found along with various degrees of amentia in families on the racial down-grade. Thus, Sir James Crichton-Browne, when giving evidence before the Royal Commission on the Care and Control of the Feeble-minded, said: "The true connection between tuberculosis and mental defect is to be found in the fact that they are both apt to fasten on a particular kind of human soil, weakly and little resistant to morbific agents."* While giving due weight to this idea, we are probably justified in concluding with Dr. Tredgold† that "in the absence of neuropathic inheritance, *consumption* and *alcoholism*, if very strongly marked, may produce mental defect."

How far **parental intemperance** is accountable has given rise to much controversy. In a paper read before the Society for the Study of Inebriety (London) in October, 1908, Dr. Potts‡ made a careful review of the evidence as to how far alcoholism in a previous generation was accountable. He cited many authenticated cases where it appeared to be a direct cause, and, in particular, one quoted by the late Dr.

* Sir James Crichton-Browne, M.D., *Report and Evidence of the Royal Commission on the Care and Control of the Feeble-minded*, 1908, vol. i., p. 329.

† A. F. Tredgold, *Report and Evidence of the Royal Commission on the Care and Control of the Feeble-minded*, 1908, vol. i., p. 396.

‡ W. A. Potts, "The Relation of Alcohol to Feeble-mindedness," *British Journal of Inebriety*, January, 1909.

Andriezen* of a man aged twenty-two, the second child of a family of six. This individual was begotten by his father while in a state of " alcoholic intoxication and exaltation. The child was neurotic, and at twenty-two had to be admitted to an asylum suffering from *dementia præcox*. The father, a well-to-do man, had several mistresses, and was the father of several other children. Though given to occasional alcoholic indulgence, he abstained from cohabiting when in a state of intoxication, and his other children, born of his sober moments, were not afflicted mentally or bodily like the patient referred to." Attention was directed in this paper to the important comparative statistics of Dr. Sullivan and others, and especially to the investigation of Dr. MacNicholl in New York. This inquiry, undertaken for the New York Academy of Medicine in 1901, recorded, among other observations, the results of tracing the family histories of 3,711 children through three generations, with great detail in regard to the taking of alcohol. Dividing them into two classes—viz., those free from hereditary alcoholic taint and those with that taint—it was found that of those free from hereditary alcoholic taint, 96 per cent. were proficient, 4 per cent. were dullards, and 18 per cent. suffered from some neurosis or organic disease. On the other hand, of those with hereditary alcoholic taint, 23 per cent. were proficient, 77 per cent. were dullards (and of these more than one-third were very deficient), and 76 per cent. suffered from some neurosis or organic disease.

The conclusions drawn at the end of the paper are that " the evidence is not clear that alcoholism by

* W. Lloyd Andriezen, " The Problem of Heredity, with Special Reference to the Pre-Embryonic Life," *Journal of Mental Science*, January, 1905.

itself in the father will produce amentia, but it is quite plain that in combination with other bad factors it is a most unfavourable element, while maternal drinking, and drinking continued through more than one generation, are potent influences in mental degeneracy."

In many cases in which alcoholism appears at first sight to be the determining factor, the alcoholism is really a neurosis, and is simply evidence of a morbid heredity. Sometimes, however, excessive drinking is deliberate self-indulgence, the consequences of which may be very serious to the offspring. There is no gainsaying this fact, although Professor Karl Pearson* claims to have proved that alcoholic indulgence in the mass has no deteriorating influence on the physique and ability of the following generation; his statistics and conclusions have, however, been subjected to much criticism. The problem is beset with difficulties; to settle the question finally, we require in statistics very careful investigation as to whether there was any sign of morbid heredity before the drinking began, and, of course, a statement as to whether the drinking preceded the birth of the child. The only comparisons of real value are between total abstainers and drinkers; any arbitrary division between moderate and excessive drinkers begs the question. Dr. Shuttleworth and others have frequently pointed out that it is also necessary to go back more than one generation; it is no uncommon experience to find that the child of a heavy drinker shows no abnormality beyond a want of nervous tone

* *A First Study of the Influence of Parental Alcoholism on the Physique and Ability of the Offspring*, by Ethel M. Elderton, with the assistance of Karl Pearson, F.R.S. Eugenic Laboratory Memoirs. London: Dulau and Co., 1910.

and tendency to eccentricity when he grows up; his eccentricity may take the form of being a rabid temperance advocate, but when one of his children exhibits mental defect, that does not indicate that temperance is no benefit, but rather that the grandfather's indulgence has had far-reaching effects.

Dr. Shuttleworth's statistics, published in 1892, showed that a number of cases, almost 30 per cent., are attributed by the parents to **maternal ill-health, accident,** or **shock** during gestation. More recent investigations, such as those of Dr. Tredgold and Dr. Goddard, have shown that when a house-to-house visitation is made, and inquiries as regards all members of the family, there are often in these cases clear evidences of a morbid heredity. We have, however, already cited experiments in both the vegetable and animal kingdoms, and special histories of human beings, which show that it is only reasonable to suppose that these conditions may exact their toll. Dr. Mercier and others, when giving evidence before the Royal Commission on the Care and Control of the Feeble-minded, gave it as their opinion that bad nutrition of the mother during pregnancy, or poisoning by such agents as alcohol and morphia, were sometimes to blame. Sir James Crichton-Browne referred to an idiot he had seen, whose mother during pregnancy had Asiatic cholera. Her children born both before and after this were healthy. Dr. Potts* has recorded a single case of mental defect in the middle of a large family, probably due to the mother sustaining a complicated fracture of the arm during pregnancy. He ascertained, however, that the mother was a confirmed alcoholic, and expressed the opinion that such

* "Causation of Mental Defect in Children," *Brit. Med. Journal*, October 14, 1905.

unfortunate developments only occurred when some other factor was also present. Such was the case in an instance he recorded of feeble-mindedness ascribed by the parents to the father having a severe attack of smallpox some twelve months before the child was born. There is reason to think that severe attacks of malaria and other infectious fevers shortly before conception may have serious effects on the mental capacity of the child. While dealing with this aspect of the subject, we may refer to the possible consequences of artificial restriction of families, and also of attempts to procure abortion. Sir James Crichton-Browne, in his evidence to the Royal Commission, said: "One cause productive of idiocy or feeble-mindedness operating during utero-gestation, and deserving of careful attention at this time, is attempts to procure abortion. When that is instrumentally attempted without success, injury may be done to the head of the fœtus, and when drugs are used these may disastrously interfere with its nutrition and growth. . . . These attempts at abortion, and also the practices employed to prevent pregnancy, with a view to the restriction of the family, are said by all the physicians who gave evidence before the New South Wales Commission to have a detrimental effect on the nervous system of the woman, producing hysteria, neurasthenia, and mental disturbance, and thus acting unfavourably on the health of any children who may be subsequently born."*

Mentally feeble children are often the offspring of highly neurotic parents, sometimes of highly cultured persons exceptionally gifted in a particular direction. It would seem, indeed, in some cases that

* *Report of the Royal Commission on the Feeble-Minded*, 1908, vol. i., p. 330.

the parents have themselves expended so much of their nervous energy that they have little left to transmit to their offspring; familiar instances will occur to everyone of distinguished men and women afflicted with children whose mental endowments are below the average. Bearing in mind the aphorism that

"Great wits are sure to madness near allied,"

and that a neurotic temperament is sometimes associated with intellectual brilliancy, this need not surprise us, though parents usually consider it as extraordinary. Mental feebleness is in some cases merely a consequence of feeble health; with improved physical conditions the mental impairment may gradually disappear.

Among CAUSES ACTING AT BIRTH, that to which most importance attaches is **prolonged parturition.** It has been alleged by Drs. Winkler, Bollaan, and others, that the use of **forceps** is accountable for a considerable amount of cerebral injury and consequent mental impairment. So far from this being the case, it appears from Shuttleworth's and Fletcher Beach's statistics that **protracted pressure** without instrumental interference is a more potent cause both of mental and nervous defect, the latter factor figuring more than four times as often as the former (*i.e.*, 14·24 per cent., as compared with 3·31) in their combined etiological table, whilst in addition the occurrence of *asphyxia neonatorum* is noted in 12·96 per cent. of Dr. Beach's cases. The late Dr. Langdon-Down,* indeed, estimated the frequency of the latter condition at 20 per cent. amongst imbecile children generally, and at 40 per cent. amongst those who

* "The Obstetric Aspects of Idiocy," *Trans. Obstet. Society*, 1876.

were first-born. It is unquestionable that the *asphyxia neonatorum* so often due to protracted unassisted labours is in some cases followed by paralysis, and enfeeblement more or less severe of the intellectual powers. It probably accounts for some of the milder types of mental feebleness, although sometimes the asphyxia is the first indication of mental and physical weakness.

Premature birth was noticed as a factor in 3·52 per cent. of the cases recorded by Dr. Shuttleworth. Although insufficient in itself to determine mental defect, this accident may just turn the scale when there are other predisposing influences.

CAUSES WHICH COME INTO PLAY AFTER BIRTH are commonly heard of, as parents readily put these forward rather than the prænatal cause of a congenital defect, which they are loth to recognise. Consequently such assigned causes as a fall, a fit, or a fright, must be received with caution, and it must be borne in mind that such may be at most the exciting cause, sometimes merely the consequence or coincidence, of a nervous catastrophe to which the child is congenitally predisposed. In the last chapter we referred to the pathology of developmental cases, and under this head many of those produced by causes acting after birth would properly fall. This remark applies especially to the cause most commonly assigned of all others for mental deficiency in children — viz., **Convulsions during teething** (eclampsia)—which figured in the statistics of the Royal Albert Asylum to the extent of 32·58 per cent. (nearly one-third of the admissions). There is no doubt that infantile convulsions frequently occur without producing any subsequent mental impairment; when it follows it is safe to assume, except

when inflammatory lesions have been set up, that there has been some inherited brain abnormality. **Epilepsy** is also a commonly assigned cause. According to Dr. Tredgold,* a special examination with regard to convulsions in over 500 mentally defective patients showed that in cases presenting no paralysis or other indication of gross cerebral lesions, and in whom, therefore, the attacks were idiopathic epilepsy, convulsions occurred in 37 per cent.; whilst in patients presenting signs of gross lesions they occurred in 70 per cent. There are cases in which a previously bright child, afflicted with epilepsy, falls into a state of mental hebetude; but in the majority of cases both the epilepsy and the mental abnormality are consequences of inherited nervous instability. Though slight injuries are often set forth as causes when quite inadequate, **Traumatism** (chiefly in the form of injury to the head) is a *bonâ-fide* cause in a number of cases—*e.g.*, in 8·25 per cent. of the admissions to the Royal Albert Asylum. **Fright** or **shock** (mental) showed as a factor in about 3 per cent. of the cases; and in such instances as that of a child cruelly locked up in a dark cupboard for several hours, or scared and bitten by a fierce dog, these shocks may be contributing causes. **Severe febrile illnesses,** such as whooping-cough, scarlatina, measles, and smallpox, were assigned as causes in nearly 10 per cent. of the admissions to the Royal Albert Asylum, and, where meningitis had supervened, probably with truth. It is remarkable that the statistics, both at Lancaster and Darenth, gathered at a time when the worst features of our elementary school system were in vogue, give but little prominence to "over-pressure" as a factor, being noted in only 0·16 per cent. of the 2,380 cases.

* *Mental Deficiency*, 1914, p. 221.

DIAGNOSIS.—The practical question often arises: How shall we recognise mental abnormality in a young infant? And the further inquiry may follow—Is the mental abnormality *primary* or *secondary?* Mothers are proverbially blind to imperfections in their offspring, and in many cases it falls to the medical attendant to point out the painful fact that the poor baby is not "all there." It behoves him, therefore, to be well posted in the diagnostic marks of infantile feeble-mindedness.

As regards the question of the earliest age at which mental deficiency can be recognised, we may say that in well-marked cases a diagnosis is possible during the early months of life. If there is great difficulty in getting the baby to suck, and careful examination shows no physical condition in either mother or child to account for this, mental weakness may be suspected. It would be confirmed by the child's configuration conforming to one of the definite types described in the last chapter, such as the Microcephalic or Mongolian. Discrimination must be exercised in deciding that there is an approximation to the type as a whole, and not merely an exhibition of one of its more prominent features, such as an epicanthic fold, which is not very uncommon in normal individuals. On the other hand, we cannot expect to find the transverse furrows on the tongue in an infant mongolian, for they develop later. Cretins have been diagnosed at the third month, but when no definite type is recognised, judgment must be postponed and the progress of development carefully watched. In the slighter cases sometimes no definite opinion can be given till seven years of age, or even a little later.

PLATE XII.

Fig. 1.

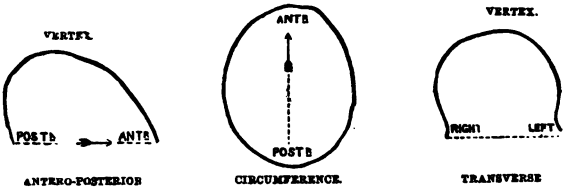


Fig. 2.

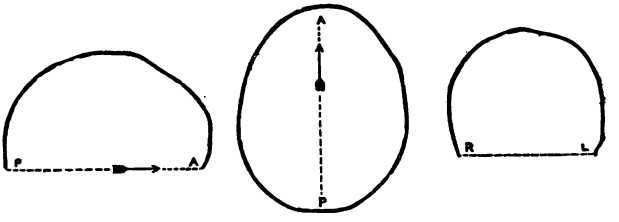
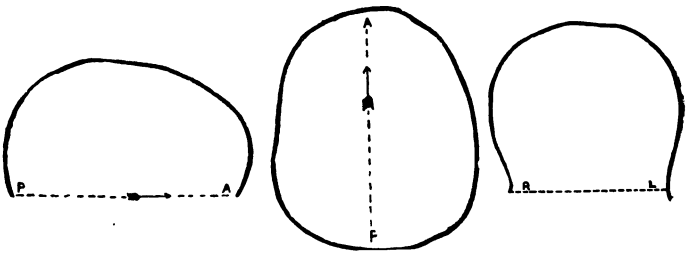


Fig. 3.



COMPARATIVE CRANIAL CONTOURS.

Fig. 1.—Microcephalic Contours. Fig. 2.—"Mongolian" Contours.
Fig. 3.—Hydrocephalic Contours.

To face page 105.

The DIAGNOSTIC marks of infantile mental defect may be grouped under four heads—viz.:

1. **Cranial Abnormalities.**
2. **Formative and Developmental Defects.**
3. **Abnormality of Nervous Action.**
4. **Defects in Nutrition.**

1. **Cranial Abnormalities.**—The most significant is, of course, **Microcephalus.** As previously stated, not only deficient size, but also a characteristic form of

FIG. 2.—MICROCEPHALIC IDIOT, AGED 20.
(From *Journal of Psycho-Asthenics.*)

head, is indicative of this abnormality (see p. 59, *ante*). Taking the average head circumference at nine months as 17 inches, and at twelve months as 18 inches, any notable deficiency in head measurement in a child otherwise of normal size may be taken to suggest microcephalus. The typical form, which confirms the diagnosis, comprises a narrow, rapidly receding forehead, a flat occiput, and a pointed vertex, thus exhibiting two marked angles, at the centre of

the face and the top of the head. We have seen typical microcephalic adults whose head circumference exceeded 20 inches, and Dr. Tredgold* refers to one whose measurement was 21 inches. The palate is high and narrow; in form, like a V or a Gothic arch. Such abnormality of palate, though more frequent in mentally defective children, is, however, by no means a definite indication in these days of teats and feeding-bottles.

Intra-uterine **Hydrocephalus** generally gives rise to a difficult labour, and the cranial abnormality in the child is not likely to escape notice. The head is globular, and the greatest enlargement is in the circumference at the level of the temples, giving the typical top-heavy appearance; there is some bulging at the fontanelles and along the sutures. Though the diagnosis is usually self-evident, there are cases without marked enlargement of the head; in such cases the diagnosis is based on periodic attacks of headache and vomiting associated with physical signs dependent on an increase of pressure.

Hypertrophic cases, although less striking, attract attention in much the same way. A diagnosis from Hydrocephalus can be made by noticing that the skull looks square rather than round, and that the increase in size is most marked just above the superciliary ridges instead of at the temples, while there is no bulging of the fontanelles or sutures. The enlargement is more even and general than in rickets, which is the commonest cause of a large head; in doubtful cases careful examination of other parts of the body should establish a diagnosis, and prevent any confusion with cretinism, achondroplasia, cleido-cranial dysostosis, or congenital syphilis. Bossy enlarge-

* A. F. Tredgold, *Mental Deficiency*, 1914, p. 207.

ments of the skull are characteristic of the two latter, but are also found in rickets, which may be associated with hypertrophic cases. In hypertrophy the circumference is less than in hydrocephaly, there being no record of one over 25 inches. For purposes of comparison, it is useful to remember that the average circumference of the normal head at five years of age is 20 to 20½ inches, and at ten 21 inches, while in the female adult it is 21¾ inches, and in the male adult 22 inches.

Oxycephaly, with its great increase in the vertical measurement of the cranium, and the shallow furrows above the temples, can scarcely be mistaken, nor can **Scaphocephaly.** The configuration of the head in both these conditions has been fully described in the last chapter (see pp. 63, 73 and 74, also Plates VII. and X., and Fig. 3, p. 108).

The so-called "**Mongol**" type leaves its impress not only on the physiognomy, but on the form of the head, as has already been described; and there should be no difficulty in recognising it even in early life. The brachycephalic skull, and the "almond-shaped," obliquely set palpebral fissures, are quite characteristic; the other physical features will be described a little later, and also the differential diagnosis from **Cretinism,** to which it often bears a superficial resemblance.

Marked asymmetry of the skull is met with in HEMIPLEGIC cases; other distortions sometimes occur, especially after a difficult labour. Occasionally injuries from forceps leave a permanent mark, but in our experience these are not more common with defective than with normal children. Asymmetry must not be taken as of itself a sign of mental defect; indeed, in adult life it is said to be a mark of culture.

Prolonged (dolichocephalic) crania with a median longitudinal ridge, especially over the sagittal suture, are met with both in normal and abnormal children, and consequently the scaphocephalic form cannot be called diagnostic. But the persistence of a medio-frontal suture, or the existence of a medio-frontal ridge towards which a narrow forehead tapers, may be accepted as signs of imperfect development of the frontal lobes.

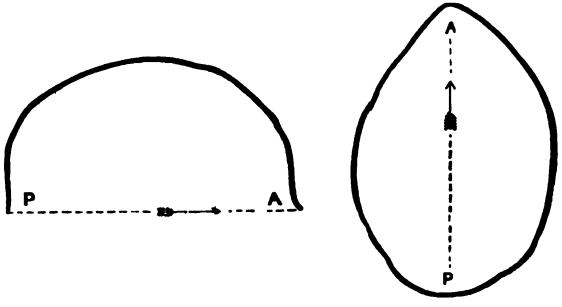


FIG. 3.—ANTERO-POSTERIOR AND CIRCUMFERENTIAL CONTOURS OF SCAPHOCEPHALIC CRANIUM.

In cases where there is any possibility of an injury at birth or later, the X rays may give much assistance in the diagnosis. For instance, in a case seen recently by Dr. Shuttleworth, a skiagram showed thinning of the bone near vertex, with a shadow below, probably due to an organised clot.* There had been a definite injury at birth.

2. **Formative and Developmental Defects.**—As signs of imperfection of physical development are often associated with mental defect, we should look for such abnormalities of formation as hare-lip; delayed or irregular dentition; cleft, high, and misshapen palates;

* See Plates XIII. and XIII(A).

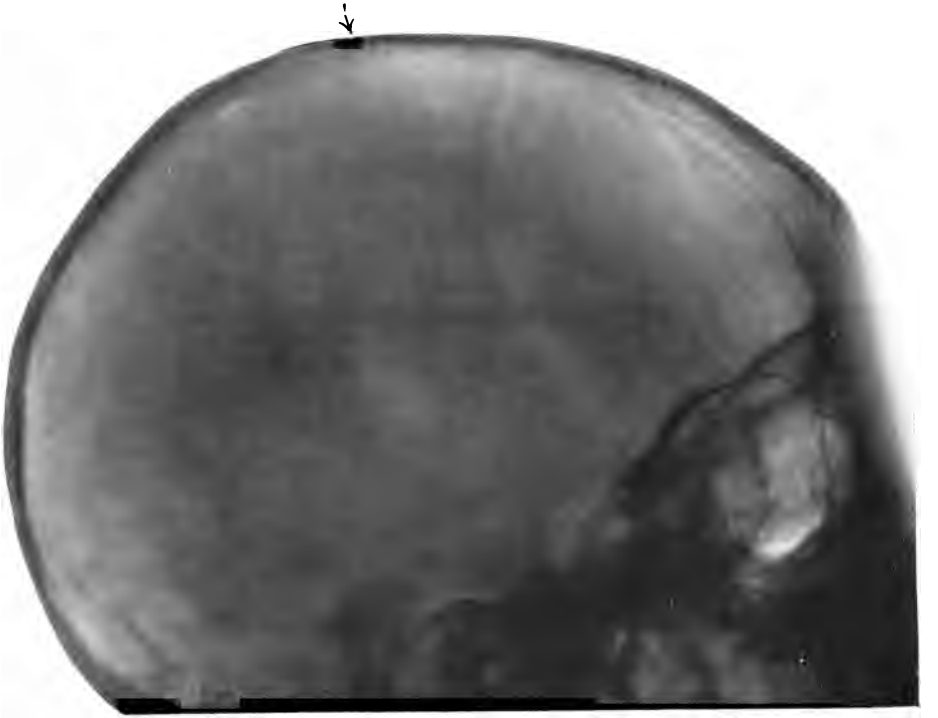
PLATE XIII.

REDUCED FROM SKIAGRAM (BY DR. N. S. FINZI) OF CHILD THREE YEARS OLD SUFFERING FROM EPILEPSY. ANTERIOR VIEW OF HEAD.

(Arrow indicates irregularity of cranial contour.)

To face page 108.

PLATE XIIIa.



REDUCED FROM SKIAGRAM (BY DR. N. S. FINZI) OF CHILD THREE YEARS OLD SUFFERING FROM EPILEPSY. RIGHT LATERAL VIEW.

(Arrow indicates irregularity of cranial contour.)

small, rudimentary, or misshapen auricles, sometimes set too far back, or at different levels on the two sides, or outstanding; supernumerary auricles represented by tags of projecting skin; epicanthic folds extending across the caruncle; opacity of ocular media; coloboma iridis; nose unusually indented at bridge or depressed; nostrils looking forward, or shaved off at the sides; hairy growths or moles on forehead or face; nævi; rough and scaly condition of skin; imperfections of nails; general blueness of face, lips, etc., from cardiac malformation; blueness and coldness of hands and feet. None of these stigmata of physical failure necessarily imply mental deficiency, but their occurrence will lead, especially if several be observed, to suspicion on the subject.*

3. **Abnormality of Nervous Action.**—Spontaneous muscular activity, though with movements minute in character (the " microkinesis " of Dr. F. Warner), incessant during waking hours, is the characteristic of healthy infant life. If these movements be absent or excessive, we may reasonably suspect something wrong with the nervous system, and predicate mental irregularities. In the former case we shall find a dull, vacant expression, sometimes associated with imperfect reflexes, so that even the function of sucking is not properly accomplished. In the latter there is over-mobility, perhaps nystagmus, and twitching movements of the muscles of the face. A general tremor is also sometimes met with. As indications of mental deficiency, we must, of course, be guided by the extent of the departure from the normal in one direction or the other. As the age of the child increases, we must carefully watch the evolution of its senses, and note deficiencies of touch,

* See Plate I., facing p. 12.

sight, hearing, etc. At a later stage, the absence of attempts at speech, when the hearing is not affected, will be of much value as a diagnostic sign. So also will be lack of muscular co-ordination and consequent inability to walk, independent of paralytic affection.

4. **Defects in Nutrition.**—The emaciated, wizened features of the slum baby, so often seen in the children's wards of East-End hospitals, furnish an extreme example of these defects. These may arise from injudicious feeding; but there is undoubtedly a congenital state of malnutrition, evidenced, for instance, in cases of inherited syphilis. Persistent defects of nutrition, in spite of good feeding, are symptomatic of defect of original constitution, and are not infrequently associated with mental deficiency. This fact was remarked by Dr. Warner in his inspection of Poor Law Schools, where, notwithstanding good feeding, the tendency to low nutrition was in greater ratio than with ordinary school children.

To sum up, we shall find aid in diagnosing the PRIMARY character of mental deficiency by noting abnormalities in the form and shape of head, and the condition of the cranial sutures; by looking for the physical stigmata, if not of degeneration, at any rate of arrested development; and by seeing signs of abnormal nervous action and a constitutional tendency to imperfect nutrition. The occurrence of *asphyxia neonatorum*, the absence of a healthy cry, defect of reflex action and of grasping power, imperfect reaction to light and sound, absence or excess of spontaneous movement, and (as time goes on) inability to notice objects or to fix the attention, with tardiness of attempts at speech and at walking, are some of the symptoms marking the child as different from other children. As a definite guide we

may state the time at which certain functions develop in a normal child; there are, however, great variations even in healthy children, so that considerable latitude must be allowed. Touch, taste, and probably smell, are more or less developed at birth, at which time the infant should present a developed voice, and cry vigorously. The power of hearing is soon established; the eyes are sensitive to light from the first, but there is a lack of power to interpret the images received. By the fifth or sixth week objects are followed by the eye, and at the same time the child, whose features have previously been more or less passive, begins to smile. From two to three months is the time at which it can sustain its head without assistance, but this is done in a vacillating way till the fourth or fifth month. By the sixth month it can sit up with ease, and accomplish many movements with its arms, hands, and fingers, and enjoy playthings. Between the seventh and ninth months it may be put on the floor alone, and can amuse itself. When from ten to twelve months old, it begins to crawl, and is generally able to walk at some time between the twelfth and sixteenth months. When twelve months old, the child begins to enunciate single words, and when eighteen months or two years learns to form short sentences.

In SECONDARY AMENTIA there is a history of normal development till the occurrence of a definite injury or disease followed by deterioration.

Tests of Intelligence.—Having explained the diagnosis as far as it can be based on anatomical and physical grounds, or abnormality of nervous action, it will be useful to indicate how the intelligence may be tested both in older children and adults. In the first place, the personal history and information as to

habits and conduct must be obtained from parents or others in charge of the patient, knowledge as to which is, indeed, essential before certificates can be made out under the Mental Deficiency Act.* No better illustrations of the kind of facts required can be given than by quoting extracts from the "Facts communicated by Others" in the medical certificates of cases already dealt with under the Act. Among others we have the following statements: "Has always been dull and backward," "Has never been like other children," "Has never grown up," "Can do no useful work," "Never works except under supervision," "Loses his way," "Cannot take care of himself," "Cannot go any errands," "Cannot be trusted with money," "Has never been able to earn anything," "Cannot keep a situation," "Abnormally passionate," "Extraordinarily obstinate," "Open to any suggestion," "Will never wash himself," "Has no memory." The Birmingham After-Care (Special Schools) Committee found that, among the high-grade feeble-minded who were able to get work after leaving school, mental defect often made itself plain by a constant change of situation (seven or eight in a year), and inability to ever earn a living wage.

As regards the observations at the time, it may be said that there is no examination and no set of tests which provide an absolute standard; the opinion of an expert after a few minutes' conversation is of much greater value than the records of a series of tests conducted by a tyro, who judges by their result only. Sometimes numerous scars of cuts and burns will be seen, suggestive of the patient's inability to take care of himself. In others the slovenly dress and torn clothes give a useful clue. The manner of

* Form of certificate will be found in Appendix E. p. 264.

the patient is of the utmost importance. How does he enter the room? How does he meet a stranger? Gait and carriage must be carefully observed. How does he conduct himself during the examination? Does he take an intelligent interest, or is he quite indifferent? What is his capacity for attention and concentration? If he cannot read or write, or tell the time, or perform simple calculations, in spite of training, the diagnosis is usually clear. If he has such elementary knowledge, he may still fail in very simple tests. Of course, in all of these allowance must be made for age, and also for any lack of education. Here, again, we can give our readers no more practical assistance than by quoting from actual certificates for detention. "Does not know the date," "Does not know when Christmas Day is," "Does not know when his birthday is," "Does not know how long he has been in this institution," "Told me that a penny was a halfpenny, and a shilling a threepenny bit," "Says a horse has two legs," "Does not know which is his right hand," "Told me that a horse has feathers on its head," "Does not see any necessity for earning his own living," "Does not know how many brothers he has," "Cannot say what he had for dinner," "Cannot describe how he came here," "Says the word *insensible* means 'Are you sensible?'" "Says the *opposite* of *ugly* is 'Are you ugly?'"

Special tests, sometimes useful, are on the following lines:

1. Turn patient's coat-sleeves inside out, and tell him to put it on.
2. Give him a knotted cord to untie.
3. Give him a match to strike.
4. Saying which feature is missing in an imperfectly drawn human figure.

5. Crossing-out test (letters or groups of different numbers of dots).

6. Distinguishing the ugly from the beautiful in pairs of face illustrations.

7. Tell him to repeat as many words (names of objects, etc.) as he can in three minutes (a child of eleven should be able to give at least sixty; an adult ought to give nearly sixty per minute).

The most important point often is, not whether the correct solution is obtained, but how the problem is approached and carried out. The interpretation of pictures is a valuable form of test.

SECONDARY cases are differentiated by the absence of signs of original defect: by a history of a normal condition in infancy until the occurrence of some serious accident, illness, or shock, which was followed by mental enfeeblement. Caution is necessary in accepting the statements of parents on these matters, and it must be remembered that a certain number of cases, not obviously suffering from congenital defect, are born with brains so unstable as to be unable to withstand the stress of life, and these may break down at a crisis of child development, or after a comparatively slight injury which would leave a normal child unharmed.

Before discussing any special types, a few general remarks on PROGNOSIS will be useful. This is an aspect of the subject to which parents and guardians not unnaturally attach the greatest importance. First we may remark, with regard to the broad division into primary and secondary cases, that the prognosis in the former is, as a rule—contrary to the popular idea on the subject—better than in the latter. The fact is that in the one there is merely defective development, and this, under favourable

circumstances, may be fostered and promoted; in the other there is actual lesion of brain tissue, more or less irremediable. Superficial appearances are in favour of secondary cases, for the others are often handicapped by ill-formed and sometimes repulsive features; yet our experience is quite in accord with that of the late J. Langdon-Down,* that "the prognosis is, contrary to what is so often thought, inversely as the child is comely, fair to look upon, and winsome." There are, however, a few cases of mild traumatism, and even of post-inflammatory lesion, in which a more cheerful view may be taken, especially in these days of brilliant brain surgery.

In primary cases Dr. Lapage has shown that the greater the mental deficiency the later is the child in learning to walk and talk, as a rule. The age, therefore, at which these accomplishments were acquired are facts of considerable importance in prognosis. A comparison with the facts of the development of infants we have just given (p. 111) will often be useful.

In the first instance the PROGNOSIS must be guarded; as shown in our concluding chapter, the number of defectives who are capable of holding their own in the world is limited, while the number who find their way into institutions is large. When working at Stoke-upon-Trent for the Royal Commission on the Care and Control of the Feeble-minded, Dr. Potts showed that the highest grade of the feeble-minded can sometimes work, and keep themselves for a time, yet drift into the workhouse at an early age. Half of all the cases were in the workhouse by the time they were thirty. Some have to be placed in lunatic asylums; the last annual report of the Birmingham

* *Obstet. Trans.*, vol. xviii.

After-Care Committee, published in June, 1915, shows that nearly 10 per cent. of their cases have met with this fate. It is important to look for any signs of dementia præcox, which affects more particularly the higher grades. The condition often develops soon after puberty; first will be noticed failure to improve; later peripheral anæsthesia, exaggerated tendon reflexes, and signs of negativism or other disorder of action characteristic of some forms of dementia præcox, settle the case.

Periodical testing by the Binet-Simon scale often helps; the child who improves year by year may achieve something after leaving school; the child who fails to advance after eleven or twelve never will. Further hints on prognosis will be given under the special types.

Special defects such as **word-deafness** and **word-blindness** are not recognised till the child is of school age; these conditions have been fully discussed in the last chapter, and only require to be mentioned here.

Passing now to some of the typical groups, let us first take the small heads, those with greater or less degree of **Microcephalus.** The theories that this is an atavistic variation or the result of premature synostosis have both been disproved; the small skull is simply the envelope of the brain of which the normal development has been arrested, probably about the fifth month of gestation. "Microcephalics usually come of a pronounced neuropathic stock, their brothers and sisters are often typical degenerates, and frequently one or more of them suffer from the same condition."* The diagnosis, as has been explained in the last chapter, and also under the heading of Cranial Abnormalities, depends not only on diminu-

* A. F. Tredgold, *Mental Deficiency*, p. 175.

tive size, but also on a characteristic shape of the head. The prognosis may be said to be, generally speaking, favourable or otherwise, in proportion to the size of the head. With heads under 18 inches in circumference the manifestation of mental power is usually so small as to come under the category of idiocy; between 18 and 19 inches the cases may be designated as imbecile; and from 19 to 20 inches is not an uncommon measurement in cases of mere "feeble-mindedness." There is hope of improvement under training, especially for the higher grades of this type. Dr. Shuttleworth had under training for four years a mentally feeble boy whose head circumference increased during that time from 19 to 20½ inches. As the sensorial and muscular powers are usually good in microcephalic cases, the powers of sucking, grasping, etc., are not impaired, while the best of them may be taught industrial work. We have known a girl with a head of 18 inches employed as an assistant dormitory maid, and a boy with a head of 19 inches helping intelligently in a bake-house. The physical health of microcephalic children is usually not amiss, and under favourable circumstances they may live to adult, and even advanced, years. Some simple occupation, not requiring head-work, is their rôle, the mental being limited by the cranial capacity.

But, as old Fuller quaintly puts it, though "heads are sometimes so little that there is no room for wit, they are sometimes so long that there is no wit for so much room." We have already remarked that *long* heads do not at all necessarily go with mental deficiency—sometimes the reverse; if Fuller had written *large* heads instead of *long*, it would have been more in accord with our experience. We refer,

of course, to the **Hydrocephalic type.*** In hydrocephalus the degree of mental defect varies greatly, and is not proportionate to the deformity. The prognosis is usually bad, but much depends on the cause and age at which it occurs, and whether the condition is stationary or slowly progressive. To determine the cause, an examination of the fluid withdrawn by lumbar puncture may be useful; this is often also the best form of treatment. The distinctions previously indicated differentiate this type from that of the **Hypertrophic** heads occasionally met with. Hypertrophic change is sometimes associated with rickets. In many hypertrophic cases there is considerable muscular weakness, even when the bodily health is fairly good; manual work in consequence is done with difficulty, and the speech may also be affected. There is often complaint of headache; sometimes encephalitis and acute mania supervene. Epilepsy is often a complication; sometimes the fits gradually subside, sometimes they get steadily worse, and may be the cause of death. The prognosis of hypertrophy of brain is consequently unfavourable, whereas in hydrocephalus, after the acute symptoms have subsided, the prospects of improvement under judicious training are considerable.

Cases of **Oxycephaly,**† or, as it is better called, "Tower skull," are readily recognised by the large proptosed eyes, absence of supra-orbital ridges, and the dome-shaped mound rising up from the forehead and separated from the temples by shallow furrows. This rare condition has been fully described in the preceding chapter (p. 73).

The chief characteristic of cases **Primarily Neurotic**

* See Plate V. (opposite p. 61).

† See Plate X. (opposite p. 73).

PLATE XIV.

FIG. 1.—"MONGOL" PROFILE.

FIG. 2.—"MONGOL" TONGUE.

MONGOLIAN TYPE.

To face page 119

is the impression they give of weakness, mental and physical; there is little power of attention. Asked to look at a fixed object held up in front of them, the eyes will quickly wander. Children of this type are slackness personified. If told to extend the arms in front, their response is feeble; the arms are not straight nor raised to the shoulder-level. Warner's "weak hand balance" is noticed. "The wrist droops, the bones of the palm of the hand are somewhat folded together, while the thumb drops and all the fingers are slightly bent." Often the right hand is kept at a lower level than the left. The "prow-shaped skull" sometimes associated with this condition has been fully described in the last chapter. This type is not infrequently blended with others. Cases of this class always do better when withdrawn from home influences, which are prejudicial (the common neurotic taint of parent and child often interacting injuriously). Placed under judicious management in healthy surroundings, much good may be done by suitable drill and manual exercises in overcoming the twitchings and nervous movements common in these cases. It must be remembered that such individuals are weak all through, and that self-control is with difficulty established and maintained. There is a special danger of their becoming inebriate, if not carefully guarded. Slight cases of this group are not uncommon, and are often a source of continual anxiety and distress to their relatives and friends.

With regard to the so-called "**Mongol**" type,* the form of the head, the almond-shaped eyes, obliquely set, the epicanthic folds, and the squat nose, are quite characteristic. The hands are usually broad,

* See Plates XIV., XV. (opposite pp. 119, 120).

and the fingers short, the little finger often being curved inwards. The feet also are characteristically clumsy, with a marked cleft between the big and second toes. Laxity of the joints is a marked feature. The skin is usually coarse in epidermis, if not furfuraceous; many have sore eyelids, some fissured lips; the hair is usually wiry. One of the most striking peculiarities is the state of the tongue, which is transversely fissured and has hypertrophied papillæ.* Dr. John Thomson† states that in the early weeks of life the tongue is normal; between the third and ninth months the papillæ get enlarged, while during the third and fourth years the transverse fissures appear. This latter peculiarity is possibly due to tongue-sucking, which is so common in this type of defective, acting on an abnormally vulnerable mucous membrane.

The mental condition of defectives of this type is almost as characteristic as the physical; the powers possessed by such children of mimicry are often extraordinary; their love of music great; their idea of time as well as tune remarkable, so that they are apt at drill and dancing. In some ways, therefore, they are full of promise, but they seldom accomplish much, and the ultimate outlook, both on the mental and physical sides, is unsatisfactory. Something may, however, be expected from a favourable environment, and cases are to be seen, sheltered in institutions, of mongolians over forty years of age. In adult life there is still peculiarity of appearance, but the physical characteristics of the type tend to be less marked as age advances. Varied gradations are

* See Plate XIV., Fig. 2, p. 119.

† John Thomson, "Notes on the Peculiarities of the Tongue in Mongolism," *Brit. Med. Journ.*, May 4, 1907.

PLATE XV.

FIG. 1.

FIG. 2.

"MONGOL" HANDS.

To face page 120.

met with, from the mentally feeble child with the slight "mongol" taint, to the idiot whose obliquely-set almond-shaped eyes are very suggestive of the "heathen Chinee." Amongst the higher grades fairly satisfactory results of mental training are sometimes obtained. Indeed, we know youths of the mildly "mongol" type who, after appropriate education, pass muster with their brothers and sisters. Simple imitative arts, such as writing and drawing, are acquired without much difficulty, but the coarsely convoluted brain is unequal to higher intellectual operations, and calculation is a stumbling-block. Simple industrial occupation, such as that of the garden and farm, may be followed, but the clumsy, ill-formed fingers militate against success in mechanical work requiring fine adjustment. From the physical side the prognosis is not good. They are generally delicate and very susceptible to cold, being apt to suffer much from chilblains. They are prone, moreover, to mucous catarrhs of the digestive and respiratory tracts, and the majority die of phthisis before arriving at maturity. Many of these cases suffer from cataract, probably of a progressive nature, for it is not observed before nine years of age. Dr. A. W. Ormond* found opacities of the lens in nineteen of a series of twenty-eight cases. They are liable also to congenital heart disease, and some die young from this cause. On post-mortem examination in such a case, the foramen ovale is usually patent, and there may be in addition some defect in the interventricular septum, as described by Dr. Guthrie in the discussion on Dr. Archibald Garrod's communication to the Clinical Society.† Cases with

* A. W. Ormond, *Brit. Med. Journ.*, November 18, 1911.

† See *Brit. Med. Journ.*, October 22, 1898, p. 1255.

this defect are not often seen in institutions, as they usually die before the age for admission.

We have suggested in the past that they are essentially *unfinished* children, and that their peculiar appearance is really that of a phase of fœtal life. Dr. John Thomson* has, however, improved upon our description by the use of the term "ill-finished," pointing out that, although something goes wrong in their growth in very early intra-uterine life, probably in the second month, yet their later development goes on continuously, though badly. Some defect of formative force may usually be traced in connection with the intra-uterine life of these cases, not uncommonly ill-health or mental depression of the mother; and it is remarkable that nearly half of these children are the last born of a long family, when the procreative powers are at a low ebb.

Dr. G. A. Sutherland† has concluded that mongolism is probably parasyphilis, because he found syphilis in eleven of his series of twenty-five cases, and strongly suspected it in three others. We have, however, already pointed out that the claim that syphilis is responsible for a large percentage of cases of mental defect is far from established as yet. Like Dr. Tredgold,‡ we have seen many cases of mongolism in which syphilis was not even to be thought of. As evidence in favour of this, we can state that, when Dr. Gordon§ subjected eight cases to the Wassermann reaction, not one gave a positive result.

* John Thomson, in *Diseases of Children*, edited by Garrod, Batten, and Thursfield, p. 882.

† G. A. Sutherland, "Mongolian Imbecility in Infants," *Practitioner*, December, 1899.

‡ A. F. Tredgold, *Mental Deficiency*, second edition, p. 213.

§ J. L. Gordon, *Lancet*, September 20, 1913.

We have already pointed out that mongolians are not instances of hereditary mental defect; they are frequently, however, found in families with a neurotic taint.

With regard to **Eclampsic** cases (the history of which will help us to a diagnosis), the prognosis varies with the severity of the consequences of the fits. A certain number of fits of doubtful origin in infancy, even when they recur frequently, leave no permanent bad effect, although for a time after they have ceased the child is dull and apathetic. Nor does any serious result follow the so-called "rickety fits," often associated with tetany and laryngismus stridulus. Still, the prognosis must always be guarded, as, according to Dr. Leonard Guthrie, "about 10 per cent. of infants who suffer from convulsions become epileptic in after-life."*

The possibility of the case being one of **Tuberous Sclerosis** must be kept in mind; a diagnosis can only be made when there is a palpable renal tumour or peculiar cells in the urine, or the condition of adenoma sebaceum can be seen. In tuberous sclerosis the prognosis is always bad, death taking place in childhood or early adult life.

As regards **Epileptic** cases, Dr. W. Aldren Turner† has shown that mental impairment is more likely to be present when there is an hereditary neuropathic tendency. His records from the Chalfont St. Peter colony also show that, while some epileptics show no mental enfeeblement after thirty years or more, the majority, as time goes on, develop a bad memory or more serious sign of failure, 29·1 per cent. becoming

* *Diseases of Children*, edited by Garrod, Batten, and Thursfield, 1913, p. 710.

† *Epilepsy*, Aldren Turner, 1907.

actually demented. Where epilepsy is associated with the lower grades of idiocy, the probability of organic lesions renders the prognosis specially unpromising. In milder cases of mental enfeeblement associated with epilepsy, the successful treatment of the epilepsy is followed by considerable mental improvement, and should the cessation of fits be permanent, the mental deficiency may gradually disappear.

Epileptic children must be educated according to their individual mental capacity. Dr. Shuttleworth found that of the 470 epileptic children in London submitted to him by the educational officers for examination and report—

(1) 17 per cent. were cases of mild epilepsy, with no obvious mental impairment, and were suitable to continue in the ordinary schools.

(2) 27·5 per cent. showed some degree of mental impairment, and were preferably educated in special classes, as, owing to their defective memory and the lesser degrees of mental deficiency, they were unsuited to compete with normal children.

(3) 40 per cent. were capable of being educated along special lines, but, owing to the frequency and severity of the seizures, additional supervision was necessary. This group was suitable for education in residential schools or colonies.

(4) 15·5 per cent. were epileptic imbeciles or dements, and were incapable of education. These required care in an idiot asylum.

According to Dr. W. A. Turner, a "*cure of epilepsy* may be defined as arrest of the seizures for a period of eight or nine years, when it will be found that from 10 to 12 per cent. of cures may be expected."

In the last chapter we have described the important

group of cases associated with some abnormality of the Sella Turcica, in which pituitary extract may be given with beneficial results.

Syphilitic cases* can be distinguished by the history and signs of inherited syphilis. As we have already pointed .out, the taint is undoubtedly a factor in many cases of mental deficiency where its external manifestations are not obvious; in some of these careful examination of the rest of the family may give an important clue, while the Wassermann reaction, as explained when discussing etiology, is a useful but not infallible guide. Degenerative changes due to this cause may, indeed, manifest themselves early in life, and give rise to cranial osteitis, meningeal inflammations, and eclampsic, epileptic and paralytic symptoms, so often associated with mental defect in children, and frequently assigned as its cause, though more correctly to be regarded as links in the chain of causation. While discussing cases associated with paralysis, we referred to the important work both Dr. Plaut and Dr. Gordon had done in establishing the close relationship of syphilis with cases of mental defect associated with motor paralysis. The most characteristic type of mental degeneration in the young associated with hereditary syphilis is that designated by Dr. Clouston in 1877 "juvenile general paralysis" (or by Dr. Judson Bury as "juvenile dementia"), in which a breakdown (mental and physical) occurs at the period of second dentition or advent of puberty, leading to a fatal issue in a few years. The first sign of mental weakness is the loss of the most recently acquired accomplishments—*e.g.*, writing or arithmetic. The hesitating, indistinct

* See paper by G. E. Shuttleworth. *British Journal of Children's Diseases*, April, 1908.

articulation and Argyll-Robertson pupil which develop a little later, together with the general feebleness of the limbs, leave no doubt as to the diagnosis. Such cases are found not to be so rare in asylums as was formerly thought, and Dr. Mott has tabulated the histories of twenty-two in volume i. of the *Archives of Neurology*. It would appear from this table, as well as from a paper in the *Practitioner*, January, 1908 in which an aggregate of forty cases are dealt with by the same author, that in at least 80 per cent. of these cases there was evidence either of a syphilitic family history or of the presence of syphilitic stigmata (in several instances, of both), and he states his opinion that, " though there may be many exciting causes, the predisposing cause of this disease (juvenile general paralysis) is nearly always hereditary syphilis," thus agreeing with the conclusions of Thiry, Alzheimer, Mendel, and other Continental pathologists, that inherited syphilis plays a predominant rôle in its etiology.

In our experience, syphilitic cases do not respond much to education. Even if they survive the second dentition and puberty without changing for the worse, they do not as a rule improve in any way.

In cases of mental deficiency associated with **Paralysis,*** the history of the case, and the occurrence of convulsions during the first few days after birth, distinguish the form due to injury at birth from that associated with paralysis developing later on as a result of some toxic condition or defective vital endurance, or a vascular lesion. In the latter there is generally a history of convulsions later in infancy, with power suddenly lost on one side; when the paralysis begins to improve, spastic contractures are

* See Plate IX. (opposite p. 72).

WOOD-CARVING, DESIGNED AND EXECUTED BY J. B.,
ROYAL ALBERT ASYLUM.

To face page 127.

left, and there is the characteristic hemiplegic gait. In the first class of cases, which used to be spoken of as birth-palsy, the mental deficiency is often more apparent than real, and the patients improve wonderfully under appropriate training. The paralysis may be either hemiplegic or diplegic, the latter being the more common; the amentia is less in the former than in the latter. The athetotic movements sometimes disqualifying them from ordinary use of the hands may be overcome by suitable finger exercises (such as will be hereafter described); as considerable power of will exists, the patient will often be able to co-operate with the doctor in trying to combat his infirmities. We have repeatedly seen children of this type, at first unable to hold a pencil, develop into admirable draughtsmen; indeed, the graphic faculty frequently seems to be good in these cases. Intricate macramé patterns have also been worked out by them, and delicate wood-carving done. Dr. Shuttleworth once had under his care a patient of this type, J. B., who at twelve years of age could not read or write, and could do nothing beyond washing and dressing himself, which he accomplished with difficulty, owing to athetosis. Two years later he was able to read, write, and draw a little, and could make simple articles in the joiners' shop. After ten years' training he was an excellent joiner, and gained prizes for wood-carving in Arts and Crafts Exhibitions. Five years later he had become the instructor in wood-carving. A recent report states that "he is able to explain his methods; is an accurate and artistic wood-carver himself; makes his own designs for panels."* It must be remembered, however, that many cases of cerebral diplegia in

*See Plate XVI.

infants die either from inanition or some intercurrent disease.

Various grades of mental defect from simple feebleness to crass idiocy are associated with paralysis developed after birth, and the prognosis varies with the degree; the prognosis is, however, worse than in the cases due to injury at birth. In those cases speech is often bad, and this fact may be misleading. It must be remembered that they have considerable will-power, and will persevere to overcome their defects. Attention must be directed mainly to the physical side, muscular atrophies and contractions being subjected to electrical treatment and massage; in the milder cases considerable improvement, both physical and mental, may be anticipated. The postnatal cases are particularly liable to epilepsy; should this develop, the prognosis is bad.

There are undoubtedly cases of cerebral paralysis in children with no intellectual weakness, but they are rare. Whatever the parents may think, we usually find a degree of mental irritability, or a tendency to epileptic fits, or emotional weakness, or some other slight mental peculiarity.

When discussing etiology, we referred to the frequent association of syphilis with plegic cases of mental defect, which has been suggested by the results obtained with the Wassermann reaction both by Dr. Plaut and Dr. Gordon. Dr. Gordon,* after examining 400 cases of congenital mental deficiency, of which 105 were plegic and 295 non-plegic, found the percentage of positive reactions to the Wassermann test in plegic cases almost treble the percentage in non-plegic cases—viz., 31·4 in the plegic as com-

* J. Leslie Gordon, M.D., "The Incidence of Inherited Syphilis in Congenital Mental Deficiency," *Lancet*, September 20, 1913.

pared with 11·2 in the others. As regards the particular types of paralysis, excluding juvenile general paralysis of the insane, in which, as might be expected, every case gave a positive result, Dr. Gordon obtained positive results in chorea and paralysis in every case, in ocular cases in 50·0 per cent., in diplegia in 48·3 per cent., in paraplegia in 20·4 per cent., and in hemiplegia in 13·6 per cent.

In the diagnosis of **Traumatic** cases the history of a fall or injury to the head must be accepted with discrimination; but falls from careless nurses' arms, from an overturned perambulator, down stone steps, and severe blows on the head, are not improbable causes. The presence of external swelling or hæmorrhage, or the occurrence of fits soon after the accident, will be confirmatory evidence. Sometimes careful examination with the X rays will reveal some localized thickening of the bone or membranes. The prognosis varies with the severity of the injuries and their consequences; the influence of an hereditary tendency to nervous disease may be an important factor. We have seen mild traumatic imbecility entirely recovered from in the process of growth and development; the resources of modern cranial surgery make the prognosis more favourable than formerly.

Of the cases in which the stigmata of **Tubercle** are strongly marked, we may say that the prognosis varies with the intensity of the taint. Much depends upon favourable environment, and it is remarkable how such cases improve, both mentally and physically, when withdrawn from insanitary slums and placed under good hygienic conditions, especially when employed in outdoor work in pure country air.

Post-febrile or **Inflammatory** cases are also diagnosed by the history, and the absence of congenital

defect. Here, again, a radiograph may help. Speaking generally, the prognosis is not favourable in these cases, though, of course, it depends upon the amount of damage the brain has sustained and the degree of atrophy consequent on meningeal thickening. In some cases irremediable lesions are left; in others the arrest of development from failing nutrition may, under favourable circumstances, be averted. In this group should be included the cases that occur after **Polioencephalo-myelitis** (infantile paralysis).

Of **Emotional** cases, caused by shock and fright, there are many degrees. The history usually serves for their recognition, while the absence of the features of congenital abnormality, with persistent nervousness, and sometimes a peculiar scared expression, will help in the diagnosis. Much good may be done by placing such a patient in a favourable environment with suitable training, and so gradually giving him confidence in himself; we have known children who have been victims of shock become, after special education, fairly useful members of society. Exposed to the rugged ways of public schools, where they may be jeered and scoffed at, there is considerable risk of mental deterioration.

Toxic cases are recognised by signs of failure in a child, previously normal, who has been dosed with alcohol or opium. The possibility of the presence of these and other powerful drugs in patent medicines must not be overlooked. The lesions are of an atrophic character; good results will follow withdrawal of the poisons, and the substitution of nourishment appropriate to the child's age.

In the last chapter we gave a full account of the pathology of the family type of infantile cerebral degeneration designated **Amaurotic Idiocy.** Here we

need only say that the diagnosis depends on the onset during the fourth month, or thereabout, of weakness of the muscles and back in a previously healthy Jewish infant, with difficulty of vision. The ophthalmoscope reveals changes in the macula lutea, while later there is optic atrophy and total amaurosis. As the disease progresses, the child is unable to sit up. All the muscles become weak. At a later stage there is muscular atrophy and emaciation. The senses of hearing and taste are preserved, and the thoracic and abdominal viscera remain healthy. The prognosis is at present hopeless, the patients always succumbing within two years, and often much sooner.

The condition occurring in older children, known as **Cerebral Degeneration with Symmetrical Changes in the Maculæ,** has also been fully described in the last chapter.

The features of **Sporadic Cretinism** are so characteristic that there is usually little doubt as to the diagnosis, which can often be made by the third month. Dwarfing, both of body and mind, with slow reaction and response, a loose baggy skin, tumid belly, bowed legs, broad, squat hands and feet, are some of the general characters.* Then there is the square, expanded head, the sallow complexion, the broad, flushed cheeks, the indented "pug-nose," the pouting lips, and the protruding tongue, making up a physiognomy which once seen is never forgotten.† Investigation shows deficiency or absence of the thyroid gland, and in many cases supraclavicular fatty tumours. The prognosis was, till a few years ago, most unfavourable. Now, thanks to the experi-

* See Plate XI., p. 79, and Fig. 1 on p. 78.

† For table of characteristic differences between Cretinism and Mongolism, see pp. 133-134.

mental researches of Victor Horsley, Schiff, and others, successful treatment by administration of the thyroid gland is an everyday occurrence. Physical and functional development then proceed at a rapid rate, and the mental hebetude and slowness characteristic of these cases are usually transformed into a vivacity and activity strangely contrasting with the previous condition.

In rare cases, however, while the bodily symptoms disappear under treatment, the mental condition does not improve. Dr. Tredgold has an interesting account of two such cases in his book "Mental Deficiency." Some observers think that, if a normal condition is to be attained, treatment must be begun early—at any rate, not later than the age of twelve months. Less marked improvement may, however, be looked for even when thyroid medication is resorted to only in later years. Indeed, Dr. Shuttleworth has treated with considerable benefit a man of forty-two, who at that age was only 3 feet 1 inch high, was quite imbecile, and suffered from lateral curvature of the spine. After three years' thyroid treatment Dr. Shuttleworth was able to report that he " has been transformed from an inert mass of unintelligent matter to an individual taking some interest in his surroundings, and able to move about and investigate them for himself. His general health has improved, and his capacity for happiness and enjoyment of life has notably increased."

It would seem, however, that to secure lasting benefit the treatment must be permanent; relapse is apt to ensue if the thyroid administration is discontinued.

There is a superficial resemblance in many cases between Cretins and Mongolians, both being backward in bodily development, with misshapen hands

and feet, squat noses, large tongues, and peculiarities of the integument. On careful examination, however, the difference is considerable. The annexed table, setting forth the characteristic differences, may be serviceable, for correct diagnosis is of importance to save parents the disappointment of expecting marked improvement from thyroid medication when the case is one of mongolism.

MONGOLISM.	CRETINISM.
1. Characteristics noticeable from birth.	1. Characteristics often not noticeable till sixth or seventh month.
2. Skull brachycephalic: contour rounded or short oval: longitudinal and transverse diameters nearly correspond.	2. Skull dolichocephalic: flat at top (fontanelles close late), expanded laterally; broad behind, often asymmetrical.
3. Forehead usually smooth.	3. Forehead usually wrinkled.
4. Palpebral fissures "almond-shaped," and more or less oblique upwards and outwards. Frequent epicanthus. Strabismus common. Ciliary blepharitis frequent.	4. Palpebral fissures horizontal, but appear small owing to pseudo-œdema of eyelids. Strabismus and ciliary blepharitis less common.
5. Cheeks chubby, often florid. Complexion mottled.	5. Often circumscribed malar flush; complexion ashy or waxy.
6. Lips often transversely fissured. Lower lip may be pursed up over upper.	6. Lower lip often everted. Mouth open. Drivelling common.
7. Tongue large and coarsely papillated if not fissured. Tongue frequently protruded and drawn back.	7. Tongue large, but not coarsely papillated or fissured. Tip of tongue thickened, and constantly protruding.

MONGOLISM.	CRETINISM.
8. Skin smooth in infancy, but furfuraceous later; not redundant or "baggy."	8. Skin dry and scaly; forms folds here and there, being redundant and "baggy."
9. Hair "wiry," often "mouse-colour," but sometimes blonde. Downy growth common on forehead, cheeks, and neck.	9. Hair harsh, coarse, and scanty. Usually of darkish tint (Bourneville says brown); scalp often eczematous.
10. Thyroid gland palpable to greater or less extent.	10. Thyroid gland impalpable to most thorough examination.
11. No fatty tumours (pseudo-lipomata) in posterior triangle of neck.	11. Fatty tumours (pseudo-lipomata) frequently found in posterior triangle of neck, etc.
12. Long bones somewhat shorter than usual, but slender.	12. Long bones shortened and thickened, in some cases bowed.
13. Hands broad; thumb and little finger short, the latter often curved towards ring finger. Fingers taper at ends.	13. Hands broad, thick, and stumpy, with wrinkled skin. Fingers square at tips.
14. Feet large and flat. Fissure between great and second toe often seen.	14. Feet squat; skin redundant about ankles and dorsum of foot.
15. Abdomen often distended; occasional umbilical hernia; often inguinal hernia.	15. Abdomen very bulky and prominent with folds of skin; umbilical hernia common.
16. Expression more or less vivacious and mobile; observant and imitative.	16. Expression dull and immobile; unobservant and apathetic.

Similarities in Each Variety.

Deficient stature, flattened bridge of nose, with expanded alæ, late and irregular dentition, deferred closure of fontanelles, retarded puberty (the last most marked in cretins).

A passing reference must be made to the rare class of **Achondroplasiacs,** mistaken sometimes for cretins, but not necessarily mentally deficient. These are usually intelligent but short-limbed dwarfs, distinguished from cretins by their "trident hands," healthy skin and copious growth of hair, and also by the absence of "fat pads," swollen eyelids, and characteristic mouth and tongue.

Whilst setting forth the leading characters of these several groups as an aid to diagnosis and prognosis, it is not pretended that we can refer all cases of mental deficiency to a single type. The majority, indeed, are of **Mixed Types** or of no particular type at all. One of the most unusual combinations we have seen was a well-marked epileptic microcephalic mongolian. Experience aids us in distinguishing and assessing the value of one factor and another in their combinations. Thus traumatism combined with a neurotic family tendency is less hopeful as regards mental improvement than when the history is good. A syphilitic element makes the outlook bad, and the physical prognosis of the mongolian with marked phthisical heredity or a cardiac lesion is most unfavourable.

Considerable care must be exercised at an early age in discriminating feeble-mindedness from retarded mental development amounting to nothing more than "backwardness." In doubtful cases a definite opinion must be withheld, and the child's development carefully watched. The best estimate will be obtained by comparing the patient with a normal child of similar age. Thus tested, a boy of ten will sometimes be found on an intellectual level with the ordinary child of five; if he has had equal advantages with the latter, we may fairly conclude that he is

" mentally feeble." M. Binet and Dr. Simon regard as defective in intelligence a child of nine or more who shows an intellectual retardation of three years.* The physical accompaniments previously alluded to, such as developmental defects, nerve signs, and low nutrition, may aid in the diagnosis. There may often be detected by the practised eye indications of the typical forms—such as the Microcephalic, Hydrocephalic, Mongol, etc.—which are more pronounced in cases of actual imbecility; while tubercular, neurotic, and, we may add, rachitic, affections are noticeable in a large number of children whose mental condition is merely subnormal. These signs, in conjunction with considerations of heredity, are of great value in the diagnosis of constitutional defect of intelligence of a minor degree, and also in the prognosis.

Unfortunately, there is sometimes associated with mental defect, particularly when not early subjected to proper training, **moral weakness,** apt to give much trouble in after-life. As Dr. Blandford has well stated in his Lumleian Lectures at the Royal College of Physicians:

" And first, of those who, through congenital defect, or as the result of disease in early life, are mentally deficient—not idiots, but weak-minded imbeciles—children in mind throughout life. They come before us in various ways. Though children in mind, they are very often men and women in wickedness and vice; and it may be necessary to place them under restraint, or to protect their property from being squandered and themselves from being robbed. I

* *Mentally Defective Children,* by Alfred Binet and Th. Simon, M.D. Authorised translation by W. B. Drummond, M.B., C.M., F.R.C.P. (Edin.). London, Edward Arnold, 1914, p. 16.

know no class over whom controversy is so likely to arise, or where we may have greater difficulty in forming a diagnosis. They are not idiots; many of them have acquired a fair amount of education, can construe a Greek play, or master a proposition of Euclid. Their memory is excellent, and we cannot compare their condition with a former one, for they have never been any better, so that this test fails us. They have no delusions or hallucinations, and are not insane in the ordinary sense of the word. With regard to many there is no difficulty. When a man or woman of forty submits to be treated like a child of ten—to be taken out and amused, and to have sixpence a week pocket-money—we have not much difficulty in forming an opinion. But the development of others is not so low; yet they are deficient in reason and judgment, and often in conduct. There is a tendency to low and depraved habits, to brutish and sensual enjoyment, to low company amongst whom they are of more importance, and if remonstrated with they show an absolute disregard for truth or for right behaviour. Lawyers will defend these patients and say that they are not insane, and the celebrated Wyndham case shows what can be done by their aid. In examining any such individual we must consider his conduct in regard to his environment and bringing up. What might be passed over in the lower walks of life is in the higher evidence of a degraded mental state. Every case must be judged by itself, and the question must be asked, Is this person able to take care of himself and his affairs? But to sign a certificate is often very difficult, as we may not ourselves witness the insane conduct, all of which we arrive at only by hearsay. It is not to be forgotten, however, that imbeciles are very prone to

display violent explosiveness of their nerve centres, and this is specially likely to happen as they advance from the period of puberty to adolescent life."*

The connection between criminality and mental deficiency is a subject of vast social importance. It is discussed in an important section, "Mental Defect and Crime," of the Report of the Royal Commission on the Care and Control of the Feeble-minded. To those interested in the subject we would commend the works of W. D. Morrison, Letchworth, Talbot, Havelock Ellis, G. H. Savage, and others, and the reports by Macdonald to the United States Bureau of Education. Lydston's "Diseases of Society" and Mercier's "Criminal Responsibility" are two excellent text-books. Many valuable papers—notably one by Dr. Barr—are to be found in the Proceedings of the American State Committees on Charities and Corrections.

We cannot go into the whole of this difficult subject, but must explain that, while very many of the feeble-minded gravitate towards immoral and antisocial conduct, only a small proportion of them are really "moral imbeciles." Take the ordinary feeble-minded child or youth away from the bad environment into which he so readily drifts, and place him in healthy and proper surroundings with good discipline; in a short time he will be quite a different creature. Such has been the experience at the Sandlebridge Schools of the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. Miss Dendy, who was the Honorary Secretary of that Society before becoming a member of the Board of Control, in answer to inquiries before the publication of our third edition, kindly wrote to say: "I am,

* *Lancet*, April 6, 1895, p. 857.

however, as you say, sure that in the majority of cases children who have been supposed to be moral defectives do not merit that title at all, and do very well as soon as they are removed from the surroundings which have prompted their evil doings;" adding: " Many children have been sent to us at Sandlebridge as incurably wicked, but we have had to discharge only one youth. He was more lunatic than feeble-minded, or, rather, I should say lunacy supervened on weakness of mind. Occasionally we have to isolate a child for a time, so that it may not contaminate the other children; but, luckily, bad habits are as soon forgotten as good ones." The true moral imbecile is, however, a difficult type. According to the Mental Deficiency Act, **Moral Imbeciles** are " persons who from an early age display some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect."

As an illustrative case, we will refer to a " youth aged nineteen, the son of respectable people. He was educated at an ordinary school, and subsequently at a technical school, where he exhibited special talent, especially for drawing. He writes an exquisite hand, and is an expert in photography. He has had several situations, usually as a clerk, but if he has not been summarily dismissed, he has always given them up after a few weeks' work. He was a thief from an early age, and has frequently been caught in the act at school and elsewhere. He has several times been in the hands of the police, and has served a term of imprisonment. He is utterly depraved; he lies in bed in the morning, and spends all the money he can get on drink and vice. He steals from his own family, and pawns the clothes with

which he is provided. Although he will not do ordinary work, he spends hours in his favourite hobby of enlarging photographs. This he does, not in the usual way, but in a manner suggestive of a mental twist, for he makes a large pencil-drawing of a small photograph, and then photographs the large drawing. So accurately is this done that people believe the enlargement to be effected in the usual way. He is certainly abnormal, for he has a narrow forehead, suffers from an extreme degree of myopia, and has a slightly dilated heart."

Essential features in the diagnosis are the consideration that the crime is out of all proportion to the temptation, that the moral shortcomings are not to be explained by training and environment, and are not influenced by ordinary discipline and punishment. There is usually some other sign of defect, but this is not necessarily of an intellectual nature. Often there is a certain eccentricity of character and a dislike of family habits; there is frequently a constant tendency to lying, together with bad sexual habits and cruelty towards companions and animals. The crime of arson is sometimes an overpowering temptation. These cases are very difficult to deal with, though something may be accomplished by prolonged training in favourable surroundings. Fortunately, real moral imbeciles are not common. It is certain that they form a very small proportion of the inmates of prisons and other places of correction. When Dr. Potts conducted an investigation for the Royal Commission on the Care and Control of the Feeble-minded into the number of the mentally defective in the parish of Birmingham, he reported, after examining 403 prisoners, of whom 44, or 10·9 per cent., were defective, that " not a single moral defec-

tive was encountered." After regularly visiting the Stafford prison in connection with a similar inquiry at Stoke-upon-Trent, he stated: "It was particularly noticed that there were but few moral imbeciles." We are not acquainted with any statistics showing the proportion of moral imbeciles in a large group of feeble-minded. Dr. Potts* carefully studied during a series of years ninety-seven consecutive cases admitted to a Magdalen Home. He found that thirty-seven were defective in some way, and that, of these, seven might be fairly described as moral imbeciles. These seven morally defective girls were sharp and intelligent, but without any sense of honour or modesty, and were insusceptible to moral and religious training, thereby differing markedly from the majority. Nothing could restrain them from lying and from stealing from their companions. As we have already indicated, the prognosis in these cases is bad. Short terms of training are useless, but when firm and judicious training can be continued for a long time in proper surroundings, improvement is sometimes effected. It is not impossible that there is a kind of moral centre in the brain, and so these cases, or some of them, have been compared with cases of agraphia or aphasia. We have, indeed, seen moral weakness develop after a head injury. If a portion of the brain is poorly developed at birth, or destroyed at a later date, it is not likely to be replaced by healthy tissue; after a long interval other portions may be educated to assume its functions. For instance, the child without a conscience may be taught that dishonesty is unpopular, and does not pay.

* "The Problem of the Morally Defective," *Lancet*, October 29, 1904.

CHAPTER VI

THE PSYCHOPATHIES OF PUBERTY AND ADOLESCENCE

THOUGH this work deals primarily with mentally deficient *children*, it has been thought desirable to introduce into this edition a brief chapter dealing with the abnormalities showing themselves during puberty and adolescence—a period in general extending from thirteen to twenty-five years of age. These are ofttimes closely connected with states of congenital unfitness, and, consequently, may be regarded as complementary to the more juvenile defects previously described. We are indebted to the acumen of Sir Thomas Clouston (whose recent death psychiatry deplores) for the earliest and most comprehensive investigations respecting the above, his classic work on the *Neuroses of Development** dating as far back as 1891. In Germany, Kraepelin has grouped the signs of juvenile progressive mental deterioration observed at adolescence (other than those of juvenile general paralysis) under the comprehensive designation of "dementia præcox"; and Ziehen, Fischer, Jung, and others, have dealt more especially with the educational aspects of the subject.

Juvenile General Paralysis of the Insane has been referred to in previous chapters,† and it will suffice to

* Published by Oliver and Boyd, Edinburgh, and by Simpkin, Marshall and Co., London, 1891.

† See chap. iv., p. 71, and chap. v., p. 125, etc.

mention here that Clouston fully describes under the designation of "developmental general paralysis" the cases of two girls, aged seventeen and nineteen respectively, the study of which convinced him that symptoms similar to those familiar to him in the general paralysis of insane adults were "due to hereditary syphilis as the predisposing cause, and to puberty as the exciting cause, with a neurotic heredity as an extra-predisposing cause."*

The degenerative symptoms showed themselves in each case at about the age of fifteen by a slow and gradual process of enfeeblement and mental "dissolution," with motor disabilities progressively advancing. In the first case the sixth standard had been reached at school; in the second, the fourth; and in each the knowledge attained was gradually lost. Mental hebetude, indolence, irritability of temper, with occasional fits of passion, and a tendency to uncleanly habits, were amongst the early symptoms noticed; and, later, melancholic symptoms and fixed delusions. In both cases there had been arrest of bodily growth and of the evolution of puberty, with absence of menstruation and of mammary development; the physiognomy remained childlike, with a vacant and listless expression. There was carelessness as to personal appearance and no sense of shame or feelings of modesty. The speech was high in pitch and monotonous, with tendency to wavy, sing-song enunciation, though not markedly tremulous. Fibrillary twitchings of the lingual and facial muscles were observed during utterance, and there was considerable hesitation in protruding the tongue. The hands and arms were awkward and shaky in the coarser manipulations and tremulous in the finer

* *The Neuroses of Development*, pp. 74-90.

movements. Grasping power was much impaired, but not notably unequal on the two sides. The muscular power and co-ordination of the lower limbs were also diminished, and the gait was slovenly. There was, however, no marked ataxia, and in the younger case the knee-jerks were found exaggerated; in the older and more advanced one completely absent. Common sensibility seemed to be impaired. In both cases the pupils were dilated and unequal, with sluggish reaction to light, and there were "Hutchinsonian" teeth. The older patient, whose degeneration had been going on for five years previous to her admission to the asylum, died from gangrene of the lower extremities six months after her admission, her mental enfeeblement and muscular weakness having slowly but steadily progressed. At the autopsy slight adhesion of the dura mater to the skull-cap was found along the coronal suture. "On reflecting the dura mater, there were numerous fine threads of adhesion between it and the arachnoid along the line of the pial veins, especially between the falx and the arachnoid. The arachnoid was milky and the pia mater tough and thickened. On removing the brain, it was found to weigh 34½ ounces. Of this there were 4½ ounces of fluid, and the cerebellum, pons, and medulla weighed 5½ ounces. The convolutions were very well marked and numerous, and there was only slight atrophy anteriorly." Adhesions of pia mater were marked over the convolutions on the under surface of the frontal lobe, and existed slightly on the under surface of the temporo-sphenoidal, but nowhere else. The two hemispheres were adherent anteriorly, and the nerves of the base bound down by thickened membrane. The lateral ventricles were much dilated, with thickened lining membrane showing a few

granulations, which were also well marked on the surface of the fourth ventricle. There were also adhesions and thickening of the membranes of the spinal cord. On microscopic examination of fresh sections of the brain, there was found considerable thickening of the pia mater, with a close network of fine fibres in the layer just below. A little deeper there were seen a considerable number of spider cells of various sizes, and in the deeper layers the nerve cells proper were very much degenerated, the apical processes of many being absent or truncated, and most of the basal processes also gone. The nucleus in many of the cells was not to be seen, whilst in others it was vacuolated. In the spinal cord the pia mater was much thickened, and degeneration of the large cells of the anterior cornua noted, and the epithelial cells lining the central canal were found largely increased.

We have ventured to draw thus copiously from Dr Clouston's observations both on account of their historical interest and because they serve to mark the pathological character of the changes found in juvenile general paralysis, the incipient symptoms of which (especially in the absence of an authentic history) are sometimes confused with those of original defect. It is noteworthy that in each of the two cases described stress was laid in the admission certificates on the *idiotic* aspect of the patients, though, of course, the history negatived the existence of amentia. It is no uncommon experience for similar cases to be recommended for admission into training institutions for imbeciles, for which, of course, they are utterly unfit. Even apart from a knowledge of the family and personal history, a correct diagnosis may be arrived at by an observation of the sluggish, dilated,

unequal pupils, sometimes irregular in outline, and of the existence of fibrillar tremors in the muscles about the mouth and of the tongue. Stigmata of inherited syphilis found in adolescence will also furnish a warning note. It is almost unnecessary to add that the course of juvenile general paralysis is slowly but surely towards a fatal termination. As Tredgold remarks, "Primary dementia in young aments is of such rare occurrence that its presence, without antecedent insanity or epilepsy, is nearly always indicative of juvenile general paralysis."*

Dementia præcox is the term used by Kraepelin to designate certain forms of mental derangement and degeneration occurring during the period of adolescence in persons not necessarily recognised as defective in their earlier years. Clouston, who had described a similar train of symptoms under the name of "adolescent insanity" more than twenty years previously, lays great stress upon its hereditary character, tracing neuropathic inheritance in 65 per cent. of his cases;† and a neuropathic family history to the extent of from 80 to 90 per cent. in cases of dementia præcox is alleged by German writers.

Clouston calls adolescent insanity "the most hereditary of all insanities," and considers that the 30 per cent. of such cases who die demented were "doomed to this ending from the first by their original hereditary defect." Yet up to about eighteen no evidence of bodily or mental defect may be apparent, though the affection may be looked upon as a condition of "postponed idiocy," evolved only just before maturity. Whether or not dementia præcox is (as Kraepelin considers) a pathological entity has been

* *Mental Deficiency*, second edition, p. 358.

† *The Neuroses of Development*, p. 116.

keenly contested; and Shaw Bolton* refers to the term as loosely applied to many types of insanity originating between puberty and maturity. According to Kraepelin,† the early symptoms are—(1) listlessness and seeming apathy; (2) sensory sphere affected, as evidenced by dream perceptions and rare hallucinations; (3) morbid curiosity and inability to sustain attention and connected conversation; and (4) memory good for events and acquirements previous to onset of affection. Later, however, the mental processes undergo deterioration, the judgment is affected, and delusions occur. Verbigeration and stereotypism are in evidence. Kraepelin groups cases into three varieties, of which the predominant features are—

1. **Hebephrenia,** in which there is a condition of mental weakness developing into subacute disturbance.

2. **Katatonia,** in which stupor or excitement occurs, with stages of auto-suggestibility.

3. **Paranoia,** in which the demented condition is slowly progressive, attended with delusions and hallucinations in an otherwise clear mind, with marked tendency to negativism. The progress of the disease often extends over many years, and intermissions of considerable length may occur, giving rise to fallacious hopes of recovery. The prognosis is, however, unfavourable: Kraepelin states that not more than 3 per cent. of the hebephrenics recover, but about 20 per cent. of the katatonics. In certain stages the resemblance to primary amentia, as regards weak will and judgment, childish conversation with tiresome

* *Brain in Health and Disease,* Joseph Shaw Bolton, p. 320.

† *Lectures on Clinical Psychiatry,* Kraepelin, translated by Johnstone. London, 1904.

iteration of phrases, may lead to confusion in diagnosis; but the statuesque postures, muscular rigidity, increased reflexes, hallucinations, and unemotional tendencies, will serve to differentiate true cases of dementia præcox, which, however, may occasionally supervene in the subject of primary amentia. A knowledge of the mental history in childhood and the existence of educational acquirement, which is not abrogated in the early stages of the dementia, will, of course, clear up the diagnosis.

Developmental Epilepsy and Epileptic Mental Degeneration.—Clouston lays down as an axiom that "almost all cases of true epilepsy first arise during the growth and development of the brain."* From birth up to the age of seven Gowers† found that out of 1,450 cases investigated, 340 (or 23 per cent.) arose during this period, 77 (or 5 per cent.) during the first year of life. From thirteen to eighteen, the period of puberty and early adolescence, 444 cases first occurred, about one-third of the whole. In the last seven years of adolescence (eighteen to twenty-five) 195 (or only 13 per cent. of all the cases) occurred. Infancy, puberty, and early adolescence thus figure as the markedly epilepto-genetic periods, respectively those of faster brain growth and most rapid development. Gowers and others have traced neuropathic heredity in from 28 to 35 per cent. of the cases noted. The "discharging lesion" of the motor cortex which Hughlings Jackson pointed out as the essential cause of epilepsy implies imperfect evolution of co-ordinating and inhibitory apparatus in the highest cortical levels, which we may consider in most cases to be an innate pathological condition.

* *Op. cit.*, p. 97.

† Gowers' *Epilepsy*, first edition, p. 12.

Epileptic nerve-storms frequently occurring produce more or less mental wreckage. The effect of epilepsy in childhood has been already considered (see pp. 123-124). It remains to add that in puberty and adolescence mental enfeeblement of various degrees is frequently produced in those who begin to suffer at this period from oft-repeated convulsions or from the minor attacks known as "petit mal." There are, however, exceptions, for such men as Julius Cæsar, Mahomet, Peter the Great, and Napoleon, are reputed to have been epileptics; but there is ample evidence that impairment of memory, judgment, and of mental activity generally, is apt to follow such attacks, and in extreme cases the previously intelligent youth may sink into a condition of progressive dementia, or develop the more active symptoms of epileptic insanity. The diagnosis of such cases is readily determined by the history; the prognosis is, with few exceptions, most unfavourable, especially when neuropathic heredity is traceable.

It has been suggested, with a considerable degree of probability, that in some cases of so-called "moral imbecility" the periodical (and at first sight inexplicable) outbursts of evil conduct are due to epileptiform impulses, and cases have been recorded in which convulsions and criminality seemed to alternate with each other.

Pubertal Perversion of Moral Sense.—Apart from the more permanent forms of moral imbecility previously referred to,* one occasionally meets with cases in which the strain of puberty in its initial period produces, especially in those of neurotic antecedents, a temporary lapse or perversion of moral sense. A well-brought-up youth of previous average intelligence and in-

* See pp. 136-141.

tegrity, during the access of puberty may begin to disregard the "proprieties," evolve hazy ideas of the distinctions between *meum* and *tuum*, and go on to appropriate other people's goods, which possibly are of no service whatever to himself. From his own family his depredations may extend to outsiders, and a public exposure may follow, greatly to the dismay of his relatives. If in the lower ranks of society, he gets into the hands of the police, and his appropriate penal treatment puzzles the magistrate, who probably commits him to a reformatory or industrial school. If of the "upper classes," a doctor is called in, who diagnoses **kleptomania,** and the youth remains in his friends' care, probably to relapse into similar peccadillos from time to time. If, however, withdrawn from his old surroundings and placed under the judicious care of a tactful tutor, able to secure his pupil's confidence and affection, and to interest him in outdoor employments and sports, a gradual rehabilitation of moral balance may be looked for as the initial stress of puberty subsides. We have, indeed, met with such cases in widely differing social ranks. Youths who have caused scandals at public schools, not only by pilfering from their schoolfellows, but in one instance by appropriating articles from the masters' common room, and in another by forging his house-master's signature to a demand for money from his father's agent, have proved amenable to influences such as are suggested above, and have eventually become useful and upright citizens. Girls, also, who in the general perturbation of budding womanhood have temporarily lost moral balance, descending, perhaps, to degraded habits and language, untruthfulness, and pilfering—*e.g.*, in one case from a servant's savings-box—have, under good

management, retrieved their characters and grown up self-respecting and respected members of society. The prognosis of cases displaying moral delinquency for the first time at puberty is not necessarily unfavourable, but discrimination is needed as regards family and personal history, not always correctly given. If instability can be traced from childhood, especially when there is a neurotic family history, the prospect of recovering a proper moral tone is, of course, less hopeful. It will be observed that to certify a person as a moral imbecile under the Mental Deficiency Act some evidence of permanent mental defect existing "from an early age" is required.

Space does not permit us to enlarge upon the **hysterical affections** which may be taken as signs of mental weakness in the adolescent period, more especially of females. In such cases whimsical fancies and perverted emotional impulses, which may, perhaps, be regarded as reflex symptoms of inchoate uterine function, give rise to eccentricities of conduct which it may be difficult to differentiate from adolescent insanity save by their more transient character. In a case recorded by Clouston a young woman of twenty complained of "jumpings" all over her body, "cracklings" in the nerves of the abdominal region, and "emptinesses" in many places! Withal there was an exuberant religiosity, with an insensitiveness to ordinary moral obligations, such as dutiful behaviour towards her parents.*

Insanity in Childhood.—Under this head we may very briefly consider symptoms which are sometimes passed over in early life until accentuated at puberty, but which point to something more than the ordinary negative characteristics of mental defect. Con-

* *The Neuroses of Development*, p. 107.

ditions indistinguishable from those of mania and of melancholia sometimes occur in the offspring of insane parents or grandparents long before puberty, though in some of these it is probable that there is a premature development of the reproductive system. The nerve-storms to which some children of unstable brain action are periodically subject may be properly classed as of the nature of maniacal insanity; and in other cases states of depression—of which instances are recorded at as early an age as six—deserve the name of melancholia. The prognosis is invariably grave, such cases often deteriorating under the stress of puberty and eventually gravitating into asylums for the insane.

Amongst **minor mental and moral changes** not infrequently noticed at this period may be mentioned lethargic conditions, asociability, causeless aversions, ill-temper, hyper-conscientiousness, religiosity, and perverted sexual trains of thought with evil practices. These may pass away as the constitutional upheaval subsides, though in cases of neuropathic inheritance there is risk of permanent mental deterioration.

CHAPTER VII

MEDICAL EXAMINATION OF MENTALLY DEFECTIVE CHILDREN UNDER THE REGULATIONS OF THE BOARD OF EDUCATION

In view of the relations subsisting between the Mental Deficiency Act—Sections 1 (1), 2 (2), and 31 (1)—and the Elementary Education Acts relating to defective and epileptic children, the Board of Education have issued a circular to Local Education Authorities, accompanying a scheme of **model arrangements** for ascertaining the existence of mental defect and its degree in children between the ages of seven and sixteen. The principal provisions are as follows:

1. The School Medical Officer, and such other duly qualified medical practitioners approved by the Board of Education as the Local Education Authority may approve for that purpose, will be Certifying Officers under the sections of both Acts above referred to.

2. Head-teachers and School Medical Officers are to report to the Local Education Authority all children appearing properly to fall under any of the sections cited of either of the Acts.

3. School Attendance Officers are also required to report the names and addresses of all children not in attendance at school who appear, or are alleged to be, defective within the meaning of the Mental Deficiency Act, 1913.

4. The Certifying Officer is to examine, under the direction of the Education Authority, all such children so reported, and any child presented by its parent as requiring to be dealt with under the Elementary Education (Defective and Epileptic Children) Act, 1899. The child is to be examined within three months of his attaining the age of seven years, and at such other times as the Authority may deem desirable.

5. A certificate in the prescribed form, together with a full report of the child on the lines of the schedule printed on pages 168 and 169, is to be furnished to the Local Education Authority.

6. In the case of children of seven years or upwards certified to be unfit for special schools in consequence of their being idiots or imbeciles, copies of such certificate and report are to be furnished to the Local Authority under the Mental Deficiency Act, 1913. In any case of proposed notification to the Local Authority of a child not certified to be an idiot or imbecile, the Board of Education is to be furnished with a copy of the report, and the question whether or not the child shall be notified will, if they think fit, be determined by the Board.

7. In any case in which a defective child is certified as unfit to be instructed in a special school or class without detriment to the interests of the other children, otherwise than on the ground of being a moral imbecile (in which case he is to be notified to the Local Authority), a copy of the report of the Certifying Officer is to be furnished to the Board of Education, who will determine, if they think fit, whether or not the retention of the child in the special school or class is practicable.

8 The Local Education Authority is to arrange for

re-examinations annually (at the least) of all pupils being educated in special schools or classes with a view of ascertaining (*a*) fitness for transfer to ordinary elementary school; (*b*) incapability of further benefit from special instruction; (*c*) fitness for special school, without detriment to the interests of the other children.

9. Similar arrangements to apply to children maintained in special schools not belonging to the Authority.

10. If a child be certified as incapable of receiving further benefit from special instruction, the Local Education Authority will notify such child to the Local Authority under the Mental Deficiency Act, 1913, and send copy of certificate; but if the child be not certified as an idiot or imbecile, it will be necessary to furnish a copy of the report to the Board of Education, who will determine, if they think fit, as to notification to the Local Authority.

11. If the Local Education Authority decide that it is desirable that a child over seven years of age who is certified as capable of receiving benefit from special instruction should be dealt with by way of supervision or guardianship under the Mental Deficiency Act, 1913, they will notify the case and the circumstances thereof to the Board of Education; and if the Board certify that it is desirable that the child be placed under supervision or guardianship, the Local Education Authority will notify the child to the Local Authority under the Mental Deficiency Act, 1913.

12. The Local Education Authority will notify to the Local Authority under the Mental Deficiency Act, 1913, any child about to be withdrawn or discharged on or before attaining the age of sixteen, in whose

case they are of opinion that it would be for his benefit that he should be sent to an institution or placed under guardianship under the Mental Deficiency Act, 1913.

13. In any cases under Clauses 6, 7, or 10, in which the Local Education Authority, notwithstanding the certificate of the Certifying Officer, are opposed to the child being notified to the Local Authority, they may refer to the Board of Education to determine the question. Similarly with regard to notifying a child who has not been certified by the Medical Officer.

14. Where the Local Education Authority propose to notify to the Local Authority under the Mental Deficiency Act blind or deaf children, reports both from the Certifying Officer and the head-teacher of the blind or deaf school attended must be sent to the Board of Education, who, if they think fit, will determine as to notification.

From a consideration of the scheme above detailed, it will be seen that increased responsibility will be thrown upon the Medical Officers of special schools, and that the time occupied by their examinations will be considerably extended by the necessity of their filling up voluminous reports, not only on children presented for admission, but also on those about to be withdrawn or discharged, or considered to be incapable of benefiting by further instruction.

The suggested form of report is substantially the same as that printed in Appendix C of the Annual Report of the Chief Medical Officer to the Board of Education for 1913.* The headings for inquiry therein relate to circumstances of environment,

* See *Annual Report, Chief Medical Officer, Board of Education*, for 1913, Appendix C, p. 321.

family and personal history, physical and mental conditions, and assessment of general intelligence in relation to age by means of the Binet-Simon tests. These tests, formulated by Binet and Simon after much experimental work, largely among normal children, admittedly rest upon a more or less empirical basis; but experience with them in France, Belgium, Germany, Denmark, and in America (where Dr. Goddard has published an edition of them specially revised for English-speaking children*), has shown that the results obtained in measuring the mental development of normal children at various ages are surprisingly accurate, and that their application to abnormal children reveals the degree of defect in them as compared with normal children of corresponding age. If a child fails to pass the tests appropriate to his own age, but passes those for a child not more than three years younger than himself, he is, in Goddard's view, *backward* by one, two, or three years; but if he is more than three years backward he is *mentally defective*. These tests do not, like ordinary educational tests, depend upon acquired attainment, nor even upon knowledge merely, but, in the words of Binet, "upon the ability to use knowledge in meeting a situation created by the standardised conditions of the test." They do not pretend to measure the entire mentality of the child, including the volitional and emotional elements, though information as to these may be incidentally gathered from the way in which the examination is faced. It is, of course, essential that the examiner should by his manner place the child at ease before applying the tests, and gain his con-

* *The Binet-Simon Measuring Scale for Intelligence*, revised edition, 1911, by Henry H. Goddard, Ph.D. The Training School, Vineland, N.J. Price 15 cents.

fidence by pleasurable suggestions, such as offering to show attractive pictures and asking what he sees in them, rather than by plying him at once with a formal *questionnaire*. In fact, the less formality that is compatible with a complete examination, the more satisfactory will be the results. Replies, however wide of the mark, must not be openly stigmatised as wrong: only words of encouragement should be used. Whilst the " standardised " form of questions presented should be strictly adhered to, in some cases it may require such explanation as may render it intelligible to the child—*e.g.*, in Question 1 for age eight it may be necessary to explain that the *difference* between two things means the points in which they are *not alike*. But no hints as to answers must be given by word or sign. Preconceived ideas of the child's abilities must be excluded from the mind of the examiner, whose correct attitude is, in Goddard's view, " to regard him as an unknown quantity, an x which is to be determined." This dictum cannot, however, be intended to imply that distracting bodily conditions (*e.g.*, toothache or headache) can be ignored; and in the case of mentally defective children it must be borne in mind that mental fatigue may be speedily induced by continuous questioning, so that it may be advisable in certain cases not to take the whole examination at one sitting. The tests of Binet and Simon grouped according to age (as revised in 1911) are printed in Appendix C of the Chief Medical Officer's Report for 1913, pp. 323, 324, and will be found to differ slightly from the arrangement by Dr. Goddard previously referred to. As the Chief Medical Officer judiciously remarks (p. 214, *note*): " There is need for much research and co-operation in order to revise our mental tests and

standardise them on various types of children. The Binet tests, which are recommended in the Board's schedule, are, it should be remembered, tentative, and not yet standardised for English use." Dr. Kate Fraser, formerly Assistant Medical Officer, Govan School Board, and now Deputy Commissioner of the Scottish Board of Control, has published a valuable paper (*School Hygiene*, May, 1913) on the use of the tests in determining the suitability of a child for admission to a special school; and there is no doubt that these tests, judiciously employed, in conjunction with the results of clinical examination, and a consideration of environment and family history, together with the experience of the teacher as to the child's educational capacity, will prove to be of considerable aid in the diagnosis and differentiation of mental defect. The competence of the examiner rightly to administer the tests is of course a *sine quâ non*, and, though any intelligent teacher may easily attain the needful technique, any bias from knowledge of a child's educational acquirements must be guarded against. The medical examiner must therefore be personally familiar with the procedure and with the inferences to be drawn from the results obtained. It has been pointed out by Dr. Kuhlmann, in an interesting contribution to the *Journal of Psycho-Asthenics* (June, 1912), that the Binet-Simon tests are valuable, not only in differentiating mentally defective children, but in grading them for class instruction, and also in gauging their capability of improvement.

Space will not permit of a detailed description of the Binet-Simon system of tests, but those desiring a more complete knowledge of the subject are referred to Goddard's pamphlet previously referred to; to Binet's papers to be found in successive numbers of

L'Année Psychologique, from 1905 to 1911; and to Dr. Drummond's authorised translation of Binet and Simon's *Mentally Defective Children*, which has recently appeared (London: Edward Arnold, 1914).

Whilst recognising the value of the Binet-Simon system judiciously used in conjunction with clinical methods and scientific scrutiny of the family history, we fully agree with the dictum of Dr. Walter E. Fernald, the experienecd superintendent of the Massachusetts Institution, that "the determination of mental defect cannot be made by automatic application of any method and scale."* In the suggested form of report on children examined for mental deficiency, appended to the "Model Arrangements" issued by the Board of Education, information is required as to social surroundings, family and personal history, general physical conditions, including also the efficiency or otherwise of the special senses, the state of the nose and throat and of spinal reflexes, the existence of physical stigmata, etc. "In assessing mental conditions, the tests designed by Binet and Simon are recommended," and in the course of their application observations may be made with regard to the activity or otherwise of such reactions of motor mechanism as are involved in the (1) formation and (2) storage of motor ideas; in (3) power of control, initiative, purpose, and concentration; (4) motor incompetence, as shown by attitude, gait, and general balance; (5) motor instability, as evidenced in uncouth habits; and (6) motor disturbance, under which are included—tremors (such as Dr. Warner designates "abnormal nerve signs"), chorea, epilepsy, aphasia, and hemiplegia. Then come "reactions resulting from sensory stimulation," in-

* *Journal of Psycho-Asthenics*, vol. xviii., No. 2, p. 80.

cluding—(1) Attention, as ascertained by the discrimination of colours, shape, size, and odours; (2) formation of memory images, as ascertained by (*a*) recognition, (*b*) recollection, of objects and sounds; (*c*) association of ideas; (*d*) judgment, as tested by appreciation of length, size, and distance; (*e*) relationship, in comprehension of similarity, contrast, symbolism. Emotional conditions, as demonstrated by interest, excitement, aggression, co-operation, affection, etc., are to be observed and noted. Then follows a list of tests of intelligence based upon educational capacity, and finally an estimation of the will-power and moral characteristics. Upon the data so obtained a diagnosis is founded under nine categories, some of which may be correlated. Finally, " recommendations as to treatment " are to be made under the following headings of the class of instruction desirable:

1. An ordinary public elementary school.
2. A special class for dull and backward children.
3. A special school (day or residential).
4. Unsuitable for a special school.

Forms of certificate to meet the needs of the various classes diagnosed are prescribed by the Board as follows:

A. " I certify that this child is not incapable, by reason of mental defect, of receiving benefit from the instruction in an ordinary public elementary school."

B. " I certify that this child, not being merely dull or backward, and not being an idiot, an imbecile, or a moral imbecile, is feeble-minded within the meaning of the Mental Deficiency Act, 1913, but is not incapable, by reason of mental defect, of receiving benefit from instruction in a special school or class

under the Elementary Education (Defective and Epileptic Children) Act, 1899."

C. " I certify that this child is incapable, by reason of mental defect, of receiving benefit from instruction in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899." " *Note.*—Under the last-named Act, idiots and imbeciles are excluded from special schools and classes certified under that Act."

D. " I certify that this child is incapable, by reason of mental defect, of receiving further benefit from instruction in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899."

E. " I certify that this child cannot be instructed in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899, without detriment to the interests of the other children."

Other forms of certificate are prescribed for epileptic, physically defective, blind, and deaf children; and there are also forms of recommendation to be employed by the Medical Officer when he is of opinion that a child in a special school should be dealt with under the Mental Deficiency Act, 1913, by way of supervision or guardianship, or, when about to be withdrawn or discharged, should be sent to an institution or placed under guardianship, in each case the reasons for such opinion being fully set forth.

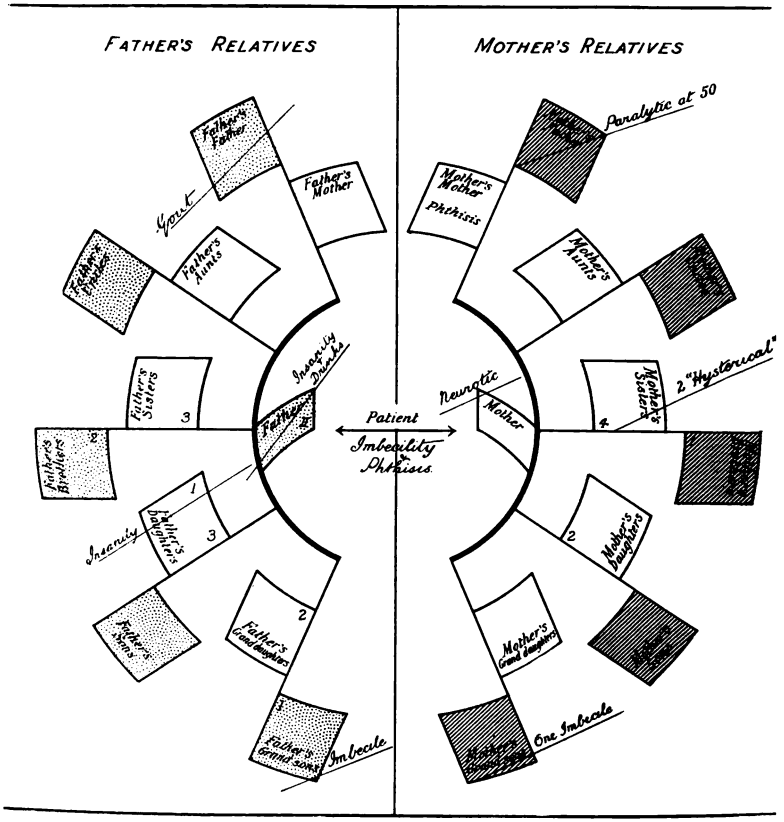
The summary just given of the procedure officially prescribed renders superfluous much that appeared in the last edition of this work as to the medical examination of children requiring special instruction. With regard to the technique, it may be noted that, in addition to appliances such as are needed in the medical inspection of ordinary schools

PLATE XVII.

Dr. E. S. Pasmore's "Flag" Chart of Heredit

(Report, Royal Commission on Care and Control of Feeble-minded, Vol. II., p. 531.
Reproduced by kind permission.)

Name..... *Date*.....



EXPLANATORY NOTES FOR USING CHART.

1. Each flag denotes particular class of relative (*e.g.* Grandparents, Aunts, etc.): male relati indicated by shading; female, plain.

2. Number of relatives in each class noted by figure in corner of flag next pole. Those affected heritable maladies denoted by line, having name of malady, drawn through flag appropriate relationship.

To face page 163.

—*e.g.*, weighing machine, height standard, and various instruments for ascertaining the general conditions, physical and sensorial, of the patient—it will be necessary to be provided with material for the Binet-Simon tests, which can be readily constructed or may be obtained in sets (as arranged by Dr. Goddard) from the C. H. Stoelting Company, 121, North Green Street, Chicago, Ill., U.S.A. In the Report for 1913 of the Chief Medical Officer, Board of Education (p. 214), the outfit of the psychiatric clinic of the school service at Stoke, as arranged by Dr. Robert Hughes, is noted as a model for Medical Officers engaged in similar work elsewhere.

With regard to special points in the model schedule, the following remarks may be found serviceable:

II. *Home Conditions* should be stated, if practicable, in terms of the rooms occupied and number in family. *School attendance* should be definitely ascertained as to date of commencement, regularity or otherwise of attendance, and type of school.

III. *Family History.*—As the statements of relatives are apt to be vague and diffuse, particularly with regard to mental and nervous defects, the employment of some such scheme* as that suggested by Dr. Pasmore (set forth opposite) is serviceable in giving precision to information collected. In the flag corresponding to each member of the family may be written alive (a.) or dead (d.); in the latter case the age and cause of death should be noted.

The question of alcoholism is always a difficult one to deal with, and, unless notorious drunkenness exists, this factor in its less conspicuous manifestations is apt to be overlooked. Even present teetotalism is not always a guarantee against the existence of alcoholic excess in the past. The examiner must needs

* Plate XVII.

be content with recording such information as the relative in attendance—usually the mother—deigns to give, and she is not likely to give evidence against herself. Such questions as, "Are you a beer or spirit drinker; and if so, when do you take your drink?" may sometimes elicit suggestive information about drinking habits, but excess must not be too hastily assumed without reliable evidence; and caution in stating in a document such as that prescribed by the Board of Education that alcoholism exists in a particular relative seems specially necessary unless conclusive proof is available.

The points to be noted under IV. *Personal History*, and under V. *Physical Conditions*, are so fully detailed in the schedule as to require no comment; but with regard to VI. *Mental Conditions* a few remarks may be hazarded. What, for instance, is meant (under VI. *a.* 3) by "execution of familiar complex movements"? The seven-years-old test in the Binet-Simon scheme would seem to supply an answer in the instruction to a child, which runs as follows: "Go and put this key on that chair. Then close the door. Then take the key which is lying on the chair near the door, and bring it to me. First put the key on the chair, then close the door, then bring the key to me." Goddard places this test amongst those for six years of age, stating that at five years of age about half the number of (normal) children tested succeed: "at six all, or nearly all," can accomplish this triple commission. Most of the "reactions resulting from sensory stimulation" mentioned under VI. (*l*) are also ascertained in the course of applying Binet's tests; and consequently it is a good plan to submit the child to these tests previous to filling up the items headed VI. *Mental Conditions*.

It cannot be denied that up to the present time children have found their way into special schools for defectives who are not the subjects of essential mental defect, though displaying a certain amount of mental abnormality as compared with ordinary school-children. In some cases, especially in young children, it is difficult to determine with any degree of certainty how far incapacity to benefit by the ordinary school curriculum is due to retarded development rather than to actual initial defect. In the differentiation between cases of " spurious " and real defectiveness, the Binet-Simon tests are serviceable, and, conventionally, a child of nine or upwards whose mental age is not more than three years behind his actual age may be considered *backward*, but a greater difference shows *mental defect.** Apart from this, retarding causes may be usually discovered, such as bad environment, irregular school attendance, physical defects—especially adenoids, defective vision or hearing—and sometimes partial incapacities, such as inferior power of calculation with fair ability in other directions. In consequence of one or more of these conditions, those affected prove incapable of benefiting by elementary school instruction suitable for the average child, and lag behind the educational standards appropriate to their age. In fact, ordinary school methods prove ineffectual for their improvement, and the question arises, especially when beyond the age for infant departments, What steps can be taken for their advancement? For such children the general establishment of **backward classes** or intermediate schools (as in the Mannheim educational system) becomes an urgent desideratum, the essential

* *Mentally Defective Children*, Binet and Simon (Drummond's translation), p. 16.

conditions being small classes, a larger proportion of physical and manual training in the curriculum, and such individual attention as the peculiarities of each case may require. In cases mentally backward owing to physical weakness, open-air schools, with their comparatively restful arrangements, often prove very beneficial. Unfortunately, " backward classes " are only to be found at present in about a dozen educational areas in England and Wales; and the result of want of appropriate provision elsewhere is that backward children are apt to gravitate to special schools (where they exist), as these are the only ones available by which they can benefit, though it is manifestly unjust to such children that they should be stamped with the stigma of mental defect. It would seem to be the duty of medical examiners to report, with regard to children of proved incapacity to benefit by instruction in the ordinary school from causes such as are mentioned above, that they need a modified curriculum, in the hope that educational authorities may see the desirability of establishing special classes for the dull and backward, in addition to those for the mentally defective. Dr. Kerr pointed out (L.C.C. Educational Reports, 1905-1906) ten years ago that a large percentage of children attending elementary schools in London, " although not actually ' mentally defective,' are yet of such a low grade mentally that they are neither capable nor worth the effort of being raised to the ordinary elementary school standard," and that for such simpler schools—the " intermediate schools " of the Mannheim educational system—were required, in which, so far as ordinary scholastic attainment is concerned, Standard IV. should be deemed sufficient; while objective teaching, with physical and manual training, should

be the predominant element. The Chief Medical Officer of the Board of Education has consistently advocated in his Annual Reports the formation of "backward classes," and in his Report for 1913 considerable space is devoted to the discussion of the question. Pending the more general establishment of classes or centres for "intermediate" instruction, it seems inevitable that the resources of the "special school" should be utilised for certain "probationary" cases, with the safeguard of systematic scrutiny as to their fitness or otherwise for an ordinary school at successive annual examinations.

Under the operation of the Elementary Education (Defective and Epileptic Children) Act of 1914, Local Education Authorities generally will be charged with provision for the education of all mentally defective children, belonging to their area, over seven years of age, subject to consultation with the parents in each case as to their wishes and ability to make suitable provision. It remains to be seen how this proviso will work in practice, but it will be an additional reason for increased care in classification, and will call for much tact as well as accuracy on the part of the medical examiner. As Section 6 makes it compulsory on the latter, if the parents so request, to consult with the head-teacher of the school previously attended by the child, it seems desirable that, in all cases in which the child has attended an elementary school, a careful written report by the head-teacher should be available at the examination and be duly considered.

Overleaf will be found print of "Model Arrangements" (Schedule F), previously alluded to in this chapter.

"MODEL ARRANGEMENTS" (BOARD OF EDUCATION CIRCULAR 829).

SCHEDULE F.

SUGGESTED FORM OF REPORT ON CHILD EXAMINED FOR MENTAL DEFICIENCY.

I. Name of Child (in full). Address. Date of Birth. School (if any). Local Education Authority.

II. Particulars of Home Conditions, Environment, School Attendance, and other Factors.

III. Family History (in regard to history of mental defect, epilepsy, alcoholism, etc.).

IV. Personal History: (*a*) Constitutional Defects, Injury at Birth, Malnutrition, Rickets, Congenital Syphilis, etc. (*b*) Diseases of Childhood. (*c*) Commencement of Teething. (*d*) Walking. (*e*) Speech.

V. Physical Conditions: (*a*) General (results of routine medical inspection). (*b*) Special:—(1) Speech: Defective articulation. (2) Sight: Blindness, total or partial, errors of refraction. (3) Hearing: Deaf-mutism, partial deafness, partial mutism. (4) Nose and throat: Enlarged tonsils, adenoids, mouth breathing. (5) Control of spinal reflexes and of salivation. (*c*) Stigmata:—(1) General retardation—Cretinoid development. (2) Cranium—Microcephaly, hydrocephaly, asymmetry, rickets, imperfect closure of fontanelles, simple head measurement. (3) Hair—Double and treble vortices, wiry or supple. (4) Face—Irregularity of features. (5) Lower jaw—Protruding or receding. (6) Eyes—Mongoloid, presence of epicanthic fold. (7) Ears—Size, setting, conformation, lateral symmetry, size of lobes, attachment of lobe to the cheek, supernumerary lobules. (8) Tongue—Enlarged, furrowed, papillæ enlarged. (9) Teeth—Irregular, absent, enlarged incisors. (10) Palate—Arched, narrow. (11) Fingers—Webbed, clubbed, defective in number or shape, supernumerary digits. (12) Limbs—Excessive length of upper limbs.

VI. Mental Conditions:

[N.B.—In assessing mental conditions, the tests designed by Binet and Simon are recommended.]

(*a*) Reactions of Motor Mechanism:—(1) Formation of Motor Ideas. (Execution of simple movements from imitation.) (2) Storage of Motor Ideas.

(Execution of simple familiar command by word of mouth.) (3) Power of control, initiative, purpose, and concentration. Success of motor output. (Execution of familiar complex movement.) (4) Motor Incompetence. Attitude in standing position of head, spine, knees. Gait. Position of arms, hands, fingers, in horizontal extension. General balance. (5) Motor Instability. (Habits.) Rocking of body, rubbing hands, spitting, biting nails, or licking lips. (6) Motor Disturbance. Tremors (face, hand, tongue), Chorea, Epilepsy, Aphasia, Hemiplegia. (*b*) Reactions resulting from Sensory Stimulation:—(1) Attention—colour, shape, size, smell. (2) Formation of Memory Images: (*a*) Recognition; objects, sounds. (*b*) Recollection. (3) Association of Ideas. (4) Judgment (for example—length, size, distance). (5) Relationship (similarity, contrast, symbolism). (6) General concepts (possession, self-protection, purpose, concentration, initiative). (*c*) Emotional Conditions: Interest, excitement, aggression, co-operation, affection, etc. (positive or negative phases). (*d*) Tests of Intelligence: (1) Description of pictures, models, objects, familiar events. (2) Letters, words, reading (word blindness). (3) Counting, manipulation of simple numbers, simple money values. (4) Writing. (5) Manual Tests. (*e*) Will Power as tested under the above headings. (*f*) Moral characteristics not recorded in (*a*) to (*e*).

VII. Diagnosis:—(*a*) Physically defective—stating defect. (*b*) Blind or partially blind. (*c*) Deaf-mute or semi-mute or semi-deaf. (*d*) Epileptic. (*e*) Merely dull or backward. (*f*) Mentally defective (feeble-minded). (*g*) Imbecile. (*h*) Moral Imbecile. (*i*) Idiot.

[In this group the symbols (*a*) to (*i*) are intended to be correlated when necessary.]

VIII. Treatment recommended. (With any necessary notes as to after-care, custody, and the degree and character of manual training and ordinary school teaching likely to be advisable.) (1) An ordinary public elementary school. (With or without particular supervision or modification of curriculum.) (2) A special class for dull or backward children. (3) A special school (state whether day or residential is recommended). (4) Unsuitable for a special school.

Signature of the Medical Officer————

Date————

CHAPTER VIII

THE TREATMENT OF MENTALLY DEFICIENT CHILDREN

(*a*) GENERAL. (*b*) MEDICAL. (*c*) SURGICAL.

THE treatment of mentally deficient children is essentially (to borrow a term from the French) *medico-pedagogic*. The physician, the teacher, and the nurse, must all co-operate in the ameliorative process, and the judicious parent will best secure the interests of his afflicted child by placing him where the efforts of the three can be co-ordinated. As a matter of convenience, however, we shall consider in order, first the general treatment, including nursing and domestic management, and after that such treatment as belongs to the domain of medicine and surgery, reserving for a subsequent chapter matters educational.

Congenital defect in the young infant having been diagnosed, are there any means available for modifying its accompanying abnormalities? Much, indeed, may be done by a loving mother, who will be patient enough to persevere, in spite of apparently slight results, to promote sensorial development and co-ordinate movement, and, as months go on, to foster habits of cleanliness. The faculty of attention, too, may be cultivated, the child being coaxed to fix its gaze on one thing at a time. The aid of music is

often serviceable, and even idiots will respond in a remarkable way to congenial sounds, which they at length try to imitate, so that music is sometimes the stepping-stone to speech. Séguin has laid down the principles on which to proceed in the following paragraph:

"As soon as any function is set down as deficient at its due time of development, the cause must be sought and combated; if external, removed; if seated in the nervous apparatus, counteracted by the earliest course of training and hygienic measures. The arm of the mother becomes a swing or a supporter; her hand a monitor or a compressor; her eye a stimulant or a director of the distracted look; the cradle is converted into a class-room or gymnasium."* It must, however, be remembered that the mother, if of neurotic temperament, is not the best person to conduct these infantile exercises. A judicious nurse, sympathetic, but not emotional, will have a better chance of success.

(*A*) GENERAL.—**Proper Feeding** is of the first importance. An emotional mother should not, as a rule, suckle her child. In her place a healthy, strong-minded wet-nurse should be employed, or judicious artificial feeding used. The risk of scurvy-rickets from the exclusive use of preserved foods (as demonstrated by Sir Thomas Barlow in his 1894 Bradshaw Lecture) must not be forgotten, and fresh milk in some form should come into the dietary. Frequently we find that infants who must be fed artificially do best with fresh cows' milk, unsterilised, but diluted with a little water or barley-water. In the case of infants who give evidence of their mental weakness by inability to suck, a spoon must be used, and great

* *Idiocy*, p. 88. New York, 1866.

patience exercised. As the child gets older, well-boiled oatmeal porridge (*par excellence* the food for bone and brain building) should be given. Careful attention must be paid to the action of the bowels, which are apt to be sluggish, though sometimes there is a tendency to mucous flux. The **hygiene of the skin** must be studied, and frequent baths, with friction, are beneficial in promoting cutaneous exhalation, otherwise often offensive, and in aiding the sluggish circulation. **Muscular activity** should be encouraged, and the child frequently laid on the "kicking-rug," and encouraged by playful methods to exercise its limbs. Fresh air is absolutely essential, and we unhesitatingly recommend the modern vogue of keeping the baby out of doors for a considerable part of every day, asleep and awake, care, of course, being taken to see that he is properly protected from the weather, and kept warm by hot-water bottles, if necessary.

Cleanly habits must be promoted by every possible means. It is a mistake to condemn the defective infant to perpetual swaddling-clothes. The aim should be to approximate as near as is practicable to the normal child, in costume as well as other matters. We have seen children of six swathed in napkins round their loins, reeking with offensive filth, to the great discomfort of all concerned, whereas methodical personal attention would have obviated the need of such expedients. Regularity in the relief of the bowels and the bladder should be inculcated early, and, of course, more frequent facilities are required than for ordinary children; but, except in the case of degraded idiots, there is every prospect of cleanliness being attained by perseverance. The practice of wetting the bed is a common one with weak-minded people of all degrees, and sometimes there is a physical

weakness of the urinary apparatus, which may be corrected by appropriate treatment. More frequently, however, these *lâches* are the result of inattention, and then moral methods, in the way of simple rewards and punishments, may be tried. One very simple remedy, partaking both of the physical and moral, is the restriction of the amount of fluid imbibed towards bed-time, and mentally feeble children are often "thirsty souls." Raising the foot of the bed, and ensuring that the child does not sleep on his back, are two other household remedies often efficacious. We do not approve of india-rubber urinals, and other mechanical arrangements, which only tend to perpetuate bad habits, any more than we do of the ingenious (?) method proposed by an Idiot Asylum Superintendent of keeping his beds clean by the nightly administration of enemata to all dirty patients. Belladonna is the drug on which most reliance is placed; sometimes small doses of thyroid are beneficial.

If the child has a tendency to **dribble,** efforts must be made to strengthen the muscles of the lips. Such exercises as holding a pencil transversely between the lips for a given time, and blowing whistles and trumpets, may be useful for this purpose.

The **clothing** requires consideration. As with other children, it should be warm, yet light, and free from constricting bands. Woollen undergarments should be worn in all cases where this is practicable, but with wet cases there may be a difficulty as regards the nether garments, and where frequent washing is necessary, swansdown or some such material may be used. Jaeger's natural wool in winter, and cellular cloth (the so-called "*Aertex*") in summer, form appropriate gradations

as to warmth. With regard to the cut of the clothes, this should conform as nearly as may be to the ordinary fashion. It is wrong to accentuate personal peculiarities by peculiar clothing. There is no good reason why boys of eight or more should continue to be dressed like girls, when kilted costumes or sailor suits would be quite as convenient, and, moreover, promote a sense of self-respect. Weak-minded children are often not devoid of all pride of appearance; this, judiciously cultivated, may be made a powerful level in the upraising of good habits. We have known a case in which a tendency to destroy clothing has been overcome, not by attiring the child in sackcloth, but by providing for her a pretty costume.

Appropriate **exercise** occupies an important place in the general management. From the first, plenty of pure outdoor air is essential to the child whose brain activity is diminished by the imperfect aeration of its blood; and as time goes on, such muscular exercise as it is capable of should by every method be promoted. From a false sense of shame the deficient member of the family is too often carefully concealed from the public gaze; when this entails, as we have known to occur, the segregation of the poor child to the limited area of its nursery, or at most to the seclusion of its "own back-yard," it is a question whether the Society for the Prevention of Cruelty to Children might not advantageously intervene. Teaching to walk will, of course, be a more tedious process than with ordinary children, but the faith which works by love will accomplish miracles, whereas neglect will too often entail permanent disability. Contractures of limbs, consequent on bad postures allowed to become permanent, are sometimes

PLATE XVIII.

J. L. ("DIOGENES").
(R.A.A.)

To face page 175.

met with in the mentally feeble; and we have a vivid recollection of a poor boy of twelve who, having spent his childhood, like a modern Diogenes,* in a tub (a sugar-hogshead), was brought to us with his legs so hopelessly deformed by his constrained posture that he was a complete cripple, though we afterwards succeeded in getting him to use a tricycle specially built for him.

But we must not linger on methods of exercise, which will be treated later; nor can we now enforce the importance of moral training from the earliest age in the formation of good habits, for this forms the subject of a future chapter. It must suffice to say that early home influences are specially potent for good or harm in the case of the mentally deficient child, and it behoves the parents of such to promptly obtain expert advice on the subject, as well as the aid of a well-qualified and intelligent nurse or nursery-governess.

The late J. Langdon-Down, in his Lettsomian Lectures† for 1887, laid stress on the prevalence of "morbid sexual erethism" in mentally deficient children of tender years, due oftentimes to the nefarious practices of an unworthy nurse. Whilst, happily, in our own experience this condition has not proved as frequent as some allege, yet the contingency must be borne in mind, and proper precautions taken.

The approach of puberty is of necessity an anxious epoch as regards domestic management, and too much care cannot be exercised by those in charge of "feeble-minded youths" (of both sexes) to guard against abuses of the animal instincts then awakened.

* See Plate XVIII.

† *Mental Affections in Childhood and Youth*, p. 47

Employment in the open air at this period will be of special value; for obvious reasons, sending to bed in the day-time as a punishment must not be thought of.

(*B*) We now pass to methods in the treatment of the mentally deficient child, which we may more especially designate MEDICAL. It has been already stated that such children are as a rule physically as well as mentally deficient. At any rate, they are feeble in body as well as in mind; sometimes (as was said of one of our Kings) "not only weak in the head, but also weak in the *understandings*." The limbs, as well as the brain, are imperfectly developed, and, of course, nervous defects and disorders are frequently met with. There is in many cases, moreover, a tendency to malnutrition, and a want of tone which renders its subjects specially liable to the inroads of infectious disease, and to parasitic skin affections.

We have already stated that a phthisical family history is common with mentally deficient children. We shall not, therefore, be surprised to find in them a marked **predisposition to tubercular disease,** sometimes affecting the joints, more often the lungs, and occasionally—though perhaps less frequently than would be anticipated—the meninges of the brain. Such causes of death formerly loomed large in the principal English institutions for defectives, accounting for at least 50 per cent. of the mortality of their inmates. Improved sanitary conditions, better ventilation and heating, and, above all, an increased open-air régime, have brought about a striking diminution in the tubercular death-rate. Thus, in his Annual Report on the Royal Eastern Counties Institution for 1912, Dr. Douglas Turner states that during the seven preceding years it had averaged only 9·2 per thousand, less by 35 per thousand than the

average prevailing previous to that period. It must, however, be borne in mind that mental defectives as a class are unusually prone to the infection of tubercle. In all cases, therefore, it behoves the medical attendant to watch for, and guard against, the incipient symptoms of tubercular disease, fortifying the constitution against it by open air, hygienic surroundings, judicious feeding, including a sufficiency of carbonaceous elements, and the administration of such medicaments as cod-liver oil, malt extract, and Parrish's chemical food. Children of the "Mongol" type are specially liable to break down from exposure, and in cold weather are apt to suffer not only from chills externally, but from internal congestions favourable to the development of tubercle bacilli. Tubercular affections of glands, eyelids, bones, and joints, frequently occur. The treatment of these will be considered under the head of *Surgical.*

Mucous diarrhœa is a frequent ailment, especially with "Mongols," and calls for care as regards feeding, and for suitable medication. We have found much benefit in these cases from the administration of a mucilaginous mixture of castor-oil, with the addition of minute doses of opium. Sometimes small and repeated doses of grey powder or calomel are of service. Astringents, pure and simple, given too early, are apt to add to the intestinal irritation.

Epilepsy has been stated to occur in at least 25 per cent. of all weak-minded children. Its dietetic and medical treatment is, consequently, of much importance in the amelioration of the mental affections of youth, which it sometimes causes, and always tends to aggravate. Our experience leads us to lay stress upon the importance of a carefully regulated diet free from stimulating elements, milk food being a

leading ingredient, with a restricted allowance of meat. All food must be thoroughly cooked and well masticated. To insure the latter condition, the services of a dentist are often required. Spratling* condemns the eating of pastry or cake in any form, also of small fruits containing hard seeds. All alcoholic drinks must be avoided, and only cocoa or *weak* tea and coffee be given. Cucumber and cabbage should be avoided. When bromide is administered, table salt should be abstained from.

As regards drug treatment, while there is no question of the value of bromides in certain cases, there is considerable difference of opinion as to whether they should be adopted as a routine treatment for all and sundry, and also as to the amount of the dose. Dr. McCallum,† the Medical Officer of the School for Epileptic Boys at Starnthwaite, in Westmorland, is an enthusiastic advocate of the routine administration of bromide, and often in large doses. He gives 20 grains night and morning, and increases by 10 grains per day as long as fits occur. If necessary, he administers 100 or even 300 grains daily, but 80 grains is the average. His experience is that boys take 80 or 100 grains quite well, but that with 150 grains or more equilibrium is interfered with, and the patient must be kept in bed. He has excellent results to show in support of his system. At Lingfield,‡ where most of the children are said to have more or less mental defect, bromide is given in selected cases, and pushed if necessary. The results in these cases are very good, and in almost every instance the

* *Epilepsy and its Treatment*, by William P. Spratling. Philadelphia, N.Y. London: W. B. Saunders and Co., 1904.

† *British Medical Journal*, March 14, 1908.

‡ *Ibid.*, June 1, 1907.

child's work and mental capacity has improved. The statistics quoted by Dr. Aldren Turner in his book on epilepsy show that 50 per cent. of the cases treated with bromide derive benefit—facts which, as he points out, go to disprove Dr. Spratling's contention that, if recovery takes place under the use of the bromides, it is in spite of, and not on account of, the drug. In our opinion, the idiosyncrasies of each case must be studied, and while some are beneficially influenced by bromides, others will do best with borax or a mixture of the two. Dr. E. C. Séguin, of New York, advocated the addition of a small dose of chloral. It is well to remember the value sometimes of a combination of the bromides. Care, of course, must be taken that depressing effects are not produced. If acne occurs, the temporary administration of arsenic is useful. Bromide rashes are, however, relatively uncommon in persons of cleanly habits, and Dr. McCallum, of Starnthwaite, says there need be no fear of a rash if the best English bromide is used. He says that the only treatment ever necessary, if it does occur, is a soothing ointment, and that the bromide can be continued. Strontium bromide has been recommended as preferable to the potassium salt, but Dr. Aldren Turner states that he has not found it more valuable than the other bromides. He refers to favourable results obtained by the use of the combination of potassium bromide, arseniate of antimony, and picrotoxin, known as Gelineau's Dragées. Among other preparations of bromide, we have had favourable experience of *bromipin* (bromide and sesame-oil). It is quite as efficacious as the ordinary bromides, and is now made in special tablets, which children take readily. It is also useful for excitable children. Bromipin can be given hypo-

dermically in the *status epilepticus* without fear of abscess, and is not a gastro-intestinal irritant, the sesame-oil with which it is made up being a simple emollient. The late Dr. Andriezen* spoke highly of a combination of antipyrin (5 grains) with ammonium bromide (15 grains) as "promoting a degree of mental brightness." In debilitated cases, the glycerophosphates form a valuable combination with the bromides. If there be a syphilitic element in the causation of the epilepsy, bichloride of mercury, combined with bark, may be of benefit, or the ordinary grey powder, or else treatment by inunction. Salvarsan has been satisfactorily employed, but in the light of our present experience should be reserved for those grave cases showing symptoms at birth. Its injection is difficult and dangerous in babies; it should be remembered that they are very liable to choroiditis, and as a rule respond well to mercury.

As regards *organotherapy* it is disappointing, in view of the frequent association of glandular with mental defect, that so far little benefit has followed the use of organic extracts, beyond that of thyroid in cretinism. Recently good results have been obtained with pituitary extract in cases in which the *hypophysis cerebri* has been involved when the base of the skull has been fractured, or has had its function impaired by other pathological changes in the Sella Turcica. The pathology of these cases and the method of recognising them by an X-ray examination have been described in Chapter IV.

Serotherapy, or the treatment of epilepsy by injections of blood-serum from another epileptic, as introduced by Ceni, has recently been carried out by

* *British Medical Journal*, September 16, 1899, p. 713.

Dr. Alfred Gordon,* of Philadelphia, in a small group of cases, with beneficial results, as described in Chapter IV. The *auto-intoxication* theory of the origin of epileptic seizures has not been proved, but may hold good in a small minority of cases, and, at any rate, often aggravates the condition, even when the real cause is to be sought elsewhere. Attention to the eliminating channels is, therefore, essential. The periodical administration of calomel and other intestinal antiseptics is often beneficial. It is to this view of the origin of epilepsy that the drugs *bromaline* (bromine and formaldehyde derivatives) and *bromocarpine* (bromine and pilocarpine) owe their introduction.

In *petit mal*, which is, perhaps, more often associated with mental enfeeblement than *grand mal*, and has a less hopeful prognosis, E. C. Séguin speaks well of "combining with a very moderate bromide course the free use of strychnine and atropine or belladonna."†

More important than drug treatment is what one may call the "**outdoor occupation cure.**" The experience of the Royal Albert Asylum, and more recently of the various epileptic colonies, is quite emphatic in this direction. Mere loafing in the open air is to very little purpose. Occupation is the predominant factor for good.

The most striking advance in the medical treatment of mental in conjunction with bodily defect is that of **sporadic cretinism.** Up to the year 1890, this was thought to be a hopeless form of idiocy;

* Alfred Gordon, M.D., *New York Medical Journal*, 1914, xcix. 10.

† "Treatment and Management of Neuroses," *New York Medical Journal*, May, 1890, p. 31.

but the experimental researches of Victor Horsley and others encouraged the view that benefit might be derived from the implantation of the thyroid gland of the sheep in such cases. Subsequently it was found that the injection of thyroid juice was of equal efficacy, and later that the ingestion by the mouth of the gland itself, or its preparations, was the best and most efficient mode of treatment. Thyroid grafting—a method of treatment which went out of vogue—has recently been suggested afresh by Sir Victor Horsley as the most desirable method, because it is permanent and avoids the continued administration of thyroid extract. His views on this subject will be found in the discussion on Dr. McGarrison's paper on " Endemic Cretinism in Chitral and Gilgit " (published in the *Proceedings of the Royal Society of Medicine*, vol. ii., No. 1, Medical Section, p. 1). When thyroid extract is administered, mental awakening proceeds *pari passu* with physical development in a manner almost startling. Those interested in the subject are referred to an article by Dr. Shuttleworth in Wright's *Medical Annual* for 1894, p. 324 *et seq.* The adjustment and regulation of the dose appropriate to each case, so as to avoid stomach irritation, excessive temperature, and undue emaciation, are the points calling for attention. So far as we can judge from present experience, this treatment (though in modified doses) must be permanent. Starting in children (according to age) with one or more 2½-grain tabloids daily, the dose may be cautiously increased up to six tabloids, and when improvement has been achieved one or two 5-grain tabloids daily will usually suffice to maintain it. The annexed Plate XIX., for which we are indebted to the courtesy of Drs. Railton and Telford-Smith, shows the condition before and after

PLATE XIX.

FIG. 1.—D. AND G. B. (BROTHERS), AGED 9 AND 14 RESPECTIVELY.

FIG. 2.—D. AND G. B. (BROTHERS), AGED 11 AND 16 RESPECTIVELY.

SPORADIC CRETINS.

(BEFORE AND AFTER TREATMENT.)

To face page 182.

PLATE XX.

CASES SHOWN IN PLATE XIX. AFTER TEN YEARS' CONTINUED TREATMENT.

G. and D. B., aged 24 and 19 respectively; younger brother 9 inches taller than the elder.

To face page 183.

treatment of two brothers, one of whom was formerly under Dr. Shuttleworth's care at Lancaster, while Plate XX. depicts their ultimate condition.

The majority of mentally deficient children being of feeble constitution, the prognosis of the **exanthemata,** and of acute disease generally, must be guarded, while depressing treatment is inadmissible. Cerebral complications are frequent, and convulsions not uncommon. Troublesome sequelæ affecting mucous membranes (in the eyelids and elsewhere) are apt to occur after measles, which, in our experience, is a disease almost as formidable as scarlatina with defectives. The irritability of mucous membranes is at all times a source of trouble with mentally deficient children, and catarrhal discharges from the eyes, nose, and ears have to be treated with astringent lotions. **Spongy gums** are frequently found, especially when the hygiene of the mouth is not attended to, and chlorate of potash washes are useful in these cases. **Aphthous patches** and **parasitic diseases of the skin** must be treated by appropriate remedies. Curious **skin affections** of neurotic origin are sometimes met with in cases of mental feebleness, such as that described by Dr. Pringle and others under the name of "Adenoma sebaceum,"* and now recognised, as we have described in Chapter IV., as part of a clinical entity designated "tuberous sclerosis" or "epiloia."

(*C*) A few remarks as to SURGICAL treatment in relation to mentally deficient children must close this chapter. The contractures of limbs may sometimes be remedied by tenotomy, but the deficiency of reparative power, and the difficulty found—at any rate, with low-grade cases—in keeping appliances in position and free from filth, must be borne in

* *British Journal of Dermatology*, January, 1890.

mind before undertaking a surgical operation. We cannot, therefore, give mentally deficient children the full benefit of all modern surgery has achieved in the treatment of paralysis, especially as, to ensure success, the after-treatment must be prolonged. Indeed, Mr. Robert Jones,* of Liverpool, has placed many of these unfortunate children "in a group outside remedial art." For the relief of constitutional disturbance, however, such as that caused by bone or joint disease in tubercular cases, operative interference is justifiable, and is generally successful. We have repeatedly seen considerable benefit to mental activity from the clearing away of post-nasal adenoid vegetations in feeble-minded children.

About 1890 the operation of **craniectomy**—*i.e.*, the cutting of strips of bone from the cranium—was recommended in cases of microcephalus. This practice has, however, been abandoned, owing to the disappointing results, and the knowledge that the small skull is simply moulded to the brain, the development of which has been arrested at the fifth month of intra-uterine life.† When signs of pressure are seen, however, as in oxycephaly, and in the rare cases in which there is a history of prematurely ossified fontanelles, operative interference may be justifiable. In Chapter IV. we have explained the advantage of draining the subarachnoid cisterns in

* *On Certain Principles and Methods in the Surgical Treatment of the Paralysis of Children*, by Robert Jones, 1902.

† See article by Dr. Shuttleworth, *Medical Annual*, 1895, p. 327. Dr. Telford-Smith has described and illustrated in the American *Journal of Psycho-Asthenics* for June, 1897, the cases of two microcephalic boys whom he had the opportunity of closely observing during four years after craniectomy had been performed, his conclusion being that in the light of results the operation is unjustifiable.

cases of **status epilepticus** due to a localised meningitis serosa externa. Beneficial results have been frequently obtained by cranial operations in cases of mental deficiency associated with traumatism, epilepsy, and paralysis; in such cases surgery should not be deferred until after the establishment of serious atrophic changes and degenerations. The diagnosis of abnormal cranial conditions, which may give rise to prejudicial irritation of subjacent tissues, is facilitated by the progress of radiography, skiagrams demonstrating with fair clearness the cranial outlines being now available.

CHAPTER IX

EDUCATIONAL TRAINING

WE now pass to the consideration of means which, as distinguished from general treatment, we may designate **Educational.** Under this term we include all those methodical and specific exercises, whether physical or mental, which naturally fall into the school routine, and need for their direction a skilled teacher, acting in concert with the physician. The kind and amount of educational exercise appropriate to a particular case of mental deficiency or feebleness should indeed be prescribed by the latter, and consequently a cursory sketch of the teaching *technique* adapted to characteristic varieties may not be out of place in what aspires to be essentially a medical work. As a matter of convenience, industrial and moral training, though forming integral portions of the educational system, will be considered in subsequent chapters.

In dividing educational means into (*a*) **physical** (those more particularly addressed to the body), and (*b*) **mental** (those more particularly addressed to the intelligence), we must bear in mind that the two are not independent of each other, and that, with regard to mentally deficient children especially, "the physiological education of the senses must precede the psychical education of the mind."* We may add that the training of the muscular system to ready

* Séguin, *New Facts*, etc., p. 41. New York, 1870.

and regulated response is merely an extension of sensorial training; and both these processes naturally precede, and prepare the way for, more purely intellectual training. It has been well remarked by Froebel that, "in primary education, the Doing, the Thing Done, the Teaching and the Learning, must, in every case, rest on actual fact and on real existence, so that the mental intelligence, incessantly striving upwards in single things, as in its general career, may thereby expand and develop the life-giving creative powers of the pupils, according to the measure of their strength and ability, their talents and desires."* The mentally feeble child is specially incapable of comprehending abstractions: all instruction, therefore, must be presented to it in a concrete form, which it can not only see, but, when possible, grasp in the hand as well as in the mind. Many of the "games" and "occupations" of the kindergarten are consequently of service, but whereas the normal child exercises its own spontaneous activity through these occupations, those who are mentally deficient, especially those of the apathetic type, have to be stimulated to action by the force of imitation. Our system of education, then, starts on physiological lines, first addressing itself to the **culture of the external senses,** then to the **co-ordination of muscular movement,** and finally to the promotion, by imitative and other exercises, both of the **manual and mental activities.**

In thus laying down these general principles of procedure, it must not be imagined that all cases can be treated in the same way. On the contrary, it is essential to success that the teacher should study the individual peculiarities of each case, and adapt the

* Froebel's *Letters on the Kindergarten.* Swan Sonnenschein and Co., 1891.

educational methods employed to those peculiarities. Mentally abnormal children may be broadly divided into two main groups: (1) those who are **dull and apathetic**; (2) those whose **nervous and mental action is irregular.** It is obvious that the rousing, stimulating *régime* suitable for the former is not that most appropriate to the latter, in whom the inhibitory and co-ordinating functions require to be strengthened by exercise.

As extreme examples of the first group we may instance the "impassive, low-grade idiot, whose education begins with a bombardment of bean-bags. Such a child is so inert as not at first to put up its hands to protect its face from the bean-bag thrown at it by the teacher; gradually, however, the instinct of self-preservation asserts itself so far as to ward off the missile. The second step, to catch the bag, and the third, to throw it back to the teacher, mark successive steps of improving mental activity; and from these progress is made in the direction of simple drill, aided by music."* The bean-bags referred to are about 5 inches square, made of bright-coloured flannel, and loosely filled with beans or rice, so that their impact is not hurtful. The same sort of exercise, varied by aiming the bags so as to pass through round or square holes in a board, or into the mouth of a grotesque figure, is excellent for promoting alertness of the eye and hand, as well as concentrating attention, in higher-grade children.

Amongst children of the second group we include those with evidences of an over-mobile nervous system, or with uniform repetitive movements, such

* See paper by Shuttleworth, "On Points Connected with the Education of Feeble-minded Children," *British Medical Journal*, September 8, 1894.

as those designated *athetosis*. The golden rule in these cases is—try to substitute, in place of purposeless, irregular movements, motor exercises with a definite purpose, and calling for will-power. In this way inability to fix the attention (*aprosexia*, as it has been called) is gradually overcome, and the moral satisfaction resulting from "something attempted, something done," encourages to fresh efforts. In cases where nervous irritability is so great as to give rise to destructive tendencies, the irregular energy

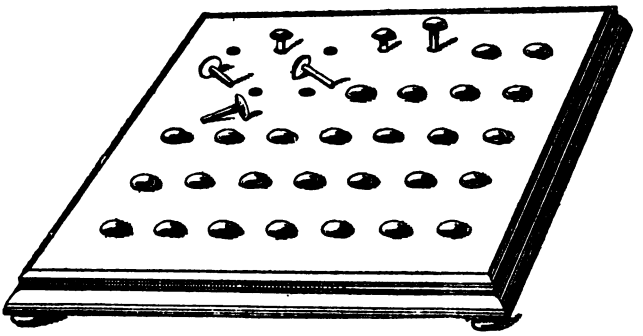


FIG. 4.—PEG-BOARD.

should be turned into constructive channels; thus a child of this temperament may be coaxed to build up wooden bricks into some definite form for the pleasure of knocking them down with a crash! Gradually he may be led on to practise building for its own sake. The child with incessant movements of his fingers (*athetosis*) is usually not greatly wanting in will-power, and it is marvellous how much may be achieved by appropriate finger exercises (such as those of the **peg-board,** see Fig. 4), or the more interesting kindergarten occupation of "picture perforating." The

intelligent teacher will know how to adopt, and adapt to the use of the deficient child, the various educational means now in vogue in our infant schools. It must, however, be borne in mind that much that the normal child learns intuitively needs to be taught specifically to the abnormal. The external senses are often functionally inactive, if not structurally defective, and it will be necessary to open up, by a series of sensorial exercises, these obstructed avenues of approach to the central intelligence. Then the due co-ordination of muscular movement must be strengthened and regulated by judicious drill. Finally, the general intelligence must be cultivated by interesting the child in its surroundings, and breaking down the isolation in which the solitary idiot, and to a less extent the mentally feeble child, carry on their existence. All this preliminary work of necessity precedes instruction in the three " R's " and what we are accustomed to regard as ordinary schoolwork. We rejoice, however, to find that the physiological sequence we have indicated, and which was laid down by Séguin seventy years ago as *the* educational mode for defective children (as well as for others), is gradually being recognised in the curriculum of elementary schools. We do not venture to trespass upon the domain of pedagogy farther than to point out the special methods of instruction indicated to meet the special requirements of pupils who, by reason of mental defect (often associated with physical), cannot " properly be taught in the ordinary standards or by ordinary methods."

And first with regard to **sensorial training,** it will be convenient to consider separately the several senses, though in practice the training will be of a combined character.

The **tactile function** is not only the most general, but in some respects the most important of our senses, and in the normal baby its evolution takes precedence of the rest. Impressions through the eye and ear are criticised through the sense of touch, and this natural development, so serviceable in the spontaneous education of all healthy young animals, must be imitated in our endeavours to bring up towards the normal standard the sensorial training of imperfect children. In some cases we shall find coarse, insensitive hands which must be drilled into sensibility by grasping hard and soft objects, and discriminating the resistance and surface impressions of such varying substances as polished marble, sand-paper, velvet, silk, etc. Sensibility to heat and cold may be gauged and cultivated by the handling of bottles filled with water of varying degrees of temperature. Such lessons will, of course, form incidents of the object-lessons which play so important a part in early education. In some exceptional cases there is a morbid sensibility (*hyperæsthesia*), which is best counteracted by friction against hard substances, and the employment of the fingers in coarse work.

In order to test and exercise tactual impressions apart from those derived from the sense of sight, Séguin, recommended that the patient should be placed in a darkened room. The same object is accomplished in the Montessori method by blindfolding the child engaged in tactual discrimination of surfaces and objects. In the case of mentally deficient children, however, there is risk, as Dr. Montessori remarks, that the attention may be diverted to the bandage itself, or that the darkened room may produce a condition of lethargy or disorder interfering with the tactual exercise.

The use of the **peg-board** (Fig. 4) has already been mentioned as serviceable in cases of *athetosis* (spasmodic finger movements): it is also valuable in cultivating the tactile sense. Similarly, **size and form boards** (Figs. 5 and 6) promote accuracy not only of grasping movements, but of capacity for adjustment of insets to their appropriate cavities; and a pincushion covered with spotted material, into the spots of which the child sticks pins, is useful in exercising minute sensation, as well as fine adjustment of the muscles. Threading coloured beads and buttons serves not only as an exercise of tactile sense, but, as will afterwards be pointed out, of the arithmetical faculty.

The appliances illustrated on pp. 193-194 were designed some sixty years ago by Séguin for use in American institutions for the feeble-minded, and with slight modifications have formed part of the school equipment for such institutions on both Continents ever since. Of recent years similar, but more elaborate, appliances have been devised by Dr. Maria Montessori for use, not only by defective children, but as aids to the auto-education of normal infants, and are on sale under the designation of the "Didactic Apparatus for use with the Montessori System of Education."* The Dottoressa acknowledges in her classic work ("The Montessori Method"), published in English in 1912, her obligations to **Séguin** and his didactic apparatus, which she has skilfully systematised and extended. She justly lays stress upon the *spirituality* (or intelligent spirit) in which the apparatus needs to be used, which is, indeed, of more importance than the precise form of its construction. It may

* A list of these appliances may be obtained from Messrs. Philip and Tacey, Ltd., Norwich Street, E.C.

perhaps be open to question whether some of the modifications introduced by her are improvements

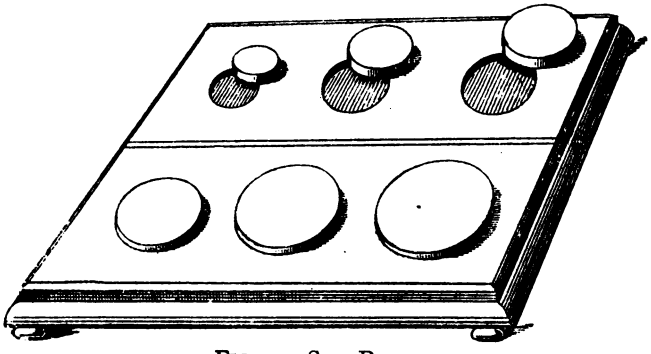


FIG. 5.—SIZE-BOARD.

on Séguin's devices. Thus the little knobs added for lifting the "geometrical insets" detract from

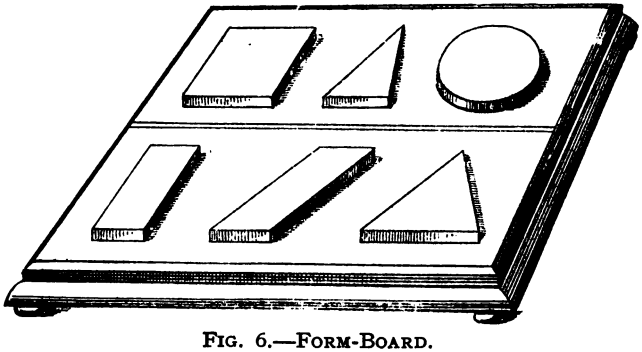


FIG. 6.—FORM-BOARD.

their utility as a grasping exercise afforded by the size and form boards above illustrated. The grooves in Séguin's "graduated rods" (Fig. 7) have advan-

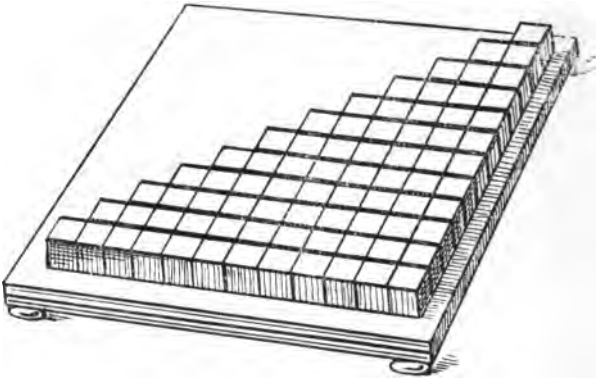


FIG. 7.—GRADUATED WOODEN RODS.

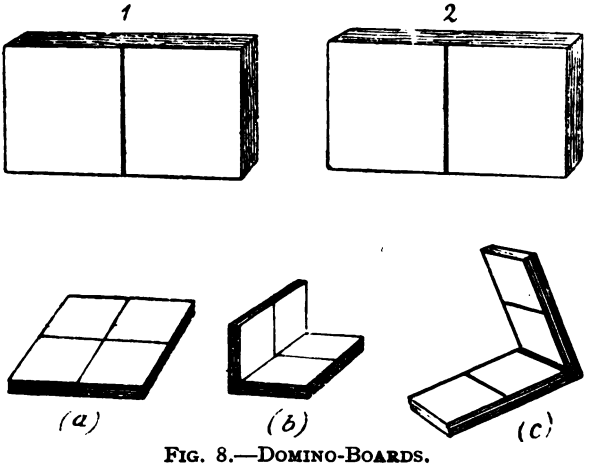


FIG. 8.—DOMINO-BOARDS.

tages as compared with the "long-stair" of the Montessori system, inasmuch as the former exercise the tactual as well as the visual sense.

The sense of **sight** comes next in importance to that of touch, as regards training. Ocular defects must, of course, be treated by the ophthalmic surgeon, and in errors of refraction correcting glasses supplied; the teacher's function is to concentrate the wandering gaze, to specialise the vacant stare of the defective pupil. To quote a quaint Gallicism of Séguin's, "the main instrument in fixing the regard is the regard"; that is to say, the vagrant eye of the pupil may be brought to attention by the fixed gaze of the instructor. Glittering objects, such as the silvered globes used for Christmas-trees, are serviceable also for this purpose, especially with very young children, and the kaleidoscope is an attractive toy of distinct educational value for older ones. The independent movements of the eyeball, apart from those of the head, should be called into play; the training of the ocular muscles is too often neglected, with the result that the child's lateral range of vision is unduly restricted. Discrimination of colour is a later exercise of the visual organ; and for this purpose discs of various colours for the child to match, cubes, the sides of which are vari-coloured and are successively turned uppermost, following the lead of the teacher, and a series of cups and balls, to be fitted together in corresponding colours, are useful aids. But perhaps more interesting to the juvenile mind is the matching of coloured ribbons and articles of clothing, or pointing out corresponding hues in coloured pictures. Exercises in colour perception naturally lead to the distinguishing of colours by name, but the former take precedence in sensorial training. The teacher or nurse should not therefore commence by asking the child *which* is red, blue, etc., but the colour sense should be exercised by getting

the child to sort into separate heaps the several discs or pieces of coloured cardboard. Matching coloured wools, and finding cards corresponding in colour to the squares on the colour chart, are other useful exercises. Forming pictures from picture cubes is a more advanced form of eye training, and the use of **size and form boards** (Figs. 5 and 6), and of the **graduated wooden rods,** to be arranged in step-like series (Fig. 7), exercises both hand and eye, and imparts ideas of form and dimension. Ideas of relation are similarly imparted by exercises with **domino-boards** (Fig. 8), two of which are placed (*a*) flat, side by side; (*b*) at right angles laterally; and (*c*) at right angles end to end, following the lead of the teacher.

Taste and smell, being essentially animal rather than intellectual senses, do not as a rule require much stimulation in the mentally deficient class.* But discrimination may be exercised by offering to the pupil substances of similar appearance, such as salt and white sugar, to be distinguished by taste; ground coffee and snuff, to be distinguished by smell.

Hearing is sometimes apparently deficient when the real deficiency is that of attention. Mentally feeble children often hear perfectly well, but do not take the trouble to listen; they may, however, be coaxed to do so by presenting to them agreeable sounds. Fortunately, music has for this class special charms, and a simple song will often enlist attention when mere speech is disregarded. Nursery ditties

* Perverted and abnormal states of these senses are occasionally met with in idiots; we have known one whose peculiar "taste for literature" was manifested by his "devouring his book," cover and all; and another who distinguished his own and his comrades' clothes solely by the sense of smell.

are consequently not without educational value, and, as we shall see later, often form stepping-stones to speech. Tone-deafness is sometimes met with, and if low-pitched sounds are not apprehended, those that are more shrill (such as those produced by the whistle) should be tried. At a later stage the discrimination by pupils of the different quality of sounds produced by different instruments is a good exercise.

Speech is a complex function, having important relations to auditory perceptions on the one side, and on the other being dependent upon the integrity of nerve centres and tracts, and the due co-ordination of the muscular apparatus concerned in vocalisation and articulation. More or less imperfection of speech is extremely common with mentally deficient children, and when not the result of want of development or lesion of the cerebral speech-centres, much may be done in the way of amelioration by appropriate training. Excluding cases dependent on deafness—in which lip-imitation methods are of much value, and the "oral method" has a literature of its own*—we may say that as a rule such children require to be taught to speak much as a baby learns to speak. In some cases, however, a course of lip and tongue gymnastics is an essential preliminary. The pupil may be unable to bring the lips together, to bring the teeth together, or to direct the tongue as required for the formation of a sound. In such cases special exercises adapted to the particular infirmity are requisite. To improve the power of closing the lips, a flat piece of boxwood, an ordinary penholder-stick, or a bone ring, may be held by the child between his lips for a few minutes at a time; and this is an exercise useful in repressing slavering. Blowing a whistle

* *E.g.*, *Lip-Reading*, by Edward B. Nitchie (London: Methuen and Co.).

is also of service, and puffing into motion a pellet of paper or a flake of cotton-wool helps in the power of pursing up the lips necessary for labial sounds. Opening and closing the mouth, so as to bring the teeth together; putting out the tongue, deviating it to the right and to the left, and touching with it the teeth of the upper and the lower jaw respectively, also the roof of the mouth, are other forms of oral exercises serviceable in overcoming defects of co-ordination interfering with clear articulation. Exercises in deep breathing are also important.*

In most cases, though not in all, consonant sounds are more readily acquired than vowel sounds. The normal infant starts its attempt at speech by repeating the simplest *labials* or *linguals*: "bab-ba," "mamma," and later "dad-da," are among its earliest efforts. Following these lines, the child deficient in speech should be exercised in simple reduplicated consonant sounds, followed by the open vowel *a* (*ah*). A schedule of speaking exercises based on these principles was published by the author in an article on the "Educational, etc., Training of Idiots and Imbeciles," in Hack Tuke's "Dictionary of Psychological Medicine."† In this the repetitive phonetic (*e.g.*, "*mam-ma*") is coupled with the name of a common object ("*mat*," "*man*"), of a part of the body ("*mouth*"), and of part of dress ("*muff*," "*mitten*"), beginning with the consonant sound (*m*); and so on through the series of labials, linguals, labio-dentals, gutturals, and nasals. There is also a table of vowel sounds and examples. But for the present work it must suffice to say that for mentally deficient children

* *Breathing Exercises*, by Duncan Matheson Mackay, M.D. (London: J. Bale, Sons and Danielsson), price 1d.

† Churchill, 1892, vol. ii., p. 673 (see Appendix C, p, 261).

half the battle is to sustain their interest, and mechanical exercises in speaking, however well devised, must be brightened up by illustration. The naming of objects in well-chosen pictures,* and of the child's own surroundings, and the imitation of the characteristic cries of animals, are some of the best means of making a start with speech. A child will demur to repeat sounds read by a teacher from a table, though he will cheerfully respond to the questions, "What does the cow say?" ("*Moo*"), or, "What does pussy say?" ("*Mew*"). Similarly he will imitate the "*Ba-ba*" of the sheep, or the "*Bow-wow*" of the dog, and thus learn both consonant and vowel sounds without conscious effort. Slovenly pronunciation, with slurring of final consonants, especially if doubled, is a frequent failing with the child of inert temperament, and needs to be dealt with by vigilance in reading and recitation exercises. Stammering, and especially stuttering, is common with those of neurotic type, and slow and deliberate utterance should be encouraged in such, exercises in deep and diaphragmatic breathing being an essential preliminary, with practice in controlling the exit of the breath. Intonation of vowels, and the gradual introduction of preceding consonants, special attention being given to those over which there is tendency to stumble, are amongst the expedients found serviceable, but these methods are best applied by skilled teachers capable of appreciating the physiological disabilities of the pupil. For those following up the subject valuable hints will be found in such treatises as Dr. Wyllie's on "The Disorders of Speech," Dr. W. S. Colman's article on "Impediments of Speech," in Allbutt's "System of Medicine," vol. viii., and

* Tuck's *Book of Objects* is recommended.

Dr. Leonard Guthrie's "Functional Nervous Disorders in Childhood."

There are two peculiar modes of speech, occurring, indeed, at a certain stage of development in normal children, but apt to persist in what Dr. Guthrie well designates the "crystallised infancy" of imbeciles, which call for special notice here—**Echolalia** and **Idioglossia.** By **Echolalia** we mean the parrot-like imitation of heard sounds and words without any definite connotation of their meaning in the mind of the imitator. All children begin to talk in this way; but the bright child soon associates the sound "*Mamma*" with his mother, "*Nan-na*" with his nurse, and so on. In due time he attains a rational vocabulary, which he is able to apply in naming familiar objects, and subsequently in replying to questions. But with some low-grade imbeciles this stage is never attained. Hearing being, however, good, and the commissural connections between the auditory centres and the organs of speech being fairly developed, a kind of reflex action is set up without the intervention of thought, and what is merely the echo of spoken words is the result. In some cases only the last words of a phrase are repeated, in others the whole phrase. Thus an imbecile, when asked "What is your name?" may reply simply, "*Name*"; or another may vacantly repeat the whole question without giving an answer. Yet the fond parent will stoutly maintain his child can "speak," and will be much discouraged, if not indignant, when told that such speech is nothing worth, and, if persistent at an age beyond infancy, denotes a low grade of mental defect. Of course, with a quite young child the prognosis is more hopeful, as there is a chance, under persevering training of the powers of observation, of his attaining the

indispensable association between the name and the thing.

Idioglossia (described by some authors as a severe form of "lalling" or lisping) is a term applied to a species of "baby language" persistent beyond the period of babyhood. Up to three or four years of age the normal child is apt to substitute sounds easy of articulation for more difficult ones: thus, "muvver" is substituted for "mother"; "tahēē" for "father"; and so on. Further, when phrases are formed, the pronunciation of the words may be grotesquely varied. as in such a sentence as "Ditty is dood 'ittle boy"—*Dicky is good little boy.* Fond and foolish parents and nurses sometimes allow themselves to fall into similar modes of language in conversing with their children, and so correct pronunciation is delayed. A child, indeed, sometimes builds up a fancy language of his own, unintelligible to any but his intimates, which may, in fact, seriously handicap him in the early years of education. In some of these cases there seems to be partial auditory or visual defect: in others, however, there may be some degree of mental defect, and imbeciles are occasionally met with who have constructed a sort of language of their own, requiring a glossary for its comprehension. Such a girl of ten, formerly under Dr. Shuttleworth's care, habitually called him "*Fish,*" because her family medical attendant had been a Dr. Fisher; his wife she designated "*Fish-mamma,*" and his daughter "*Fish-dolly*"! An old man glazing the greenhouse was promptly christened by her "*Pa-putty*"! In this case the "idioglossia" (using this term in its etymological rather than strictly scientific sense) seems to have had a philological basis. Interesting as these deviations from normal speech may be, they

are not, however, to be encouraged; and in the case of imbecile children especially, every effort should be used to promote correct pronunciation. Training in speech is, indeed, a valuable means of fixing the attention and cultivating muscular co-ordination, and in these respects, as well as for its specific effect, may be regarded as a valuable adjuvant to other educational measures.

It has already been remarked that, with the feeble-minded, music is often a stepping-stone to speech. Such children will frequently hum tunes that take their fancy before they are able to articulate words; but if attractive tunes set to words containing repetitions of simple sounds (such as the "Ba-ba, black sheep" of our old Nursery Rhymes*) are constantly repeated to them, the probability is that, after a time, first one word and then another will be taken up by the pupil, till the rhyme as well as the tune is known.

We pass from the cultivation of speech, which occupies an intermediate place between sensorial training and the co-ordination of muscular movement, to a consideration of the exercises more especially addressed to the latter, which we include under the comprehensive designation of **drill.** With children of deficient bodily as well as mental development, physical training is serviceable not only for muscular growth and co-ordination, but, inasmuch as it demands prompt obedience, for strengthening the faculty of attention. The movements must be gentle and adapted to individual capacities, and even *incapacities;* mere "tours de force" are inadmissible. Musical drill is to be preferred—at any rate, in the

* Elliott's *National Nursery Rhymes* is recommended for this purpose.

first instance—whenever practicable, and there are now many excellent manuals on this subject, such as Gill's "Physical Exercises," Alexander's "Musical Drill for Infants," etc.,* which may be advantageously used for exceptional as well as ordinary children. Light wooden dumb-bells, wands and rings, are the simple apparatus required. The Syllabus of Physical Exercises issued by the Inter-Departmental Committee for use in Public Elementary Schools contains many that are also appropriate for special schools, including some for deep breathing. "Swedish" drill under a judicious instructor is of much value. For special infirmities, however, such as we frequently meet with in the mentally feeble, special exercises have to be devised for particular cases; and the want of balancing power many show is overcome by "toeing the line," by walking the plank, by stepping first between the broad bars of a ladder laid horizontally on the ground, and then from bar to bar. Deficient grasping power is strengthened first by the bean-bag exercises previously referred to, then by bar-bells, and finally by supporting the weight of the body on parallel bars or from the bridge-ladder. Séguin speaks highly of the beneficial effect of a swing worked by the child's feet from a spring-board in developing the lower limbs and strengthening weak knees.

Though scarcely gymnastic, **dressing lessons** may be given with advantage as class exercises to children inexpert in putting on their clothes. Buttoning, lacing, and tying bows and knots bring into play fine adjustments of the fingers frequently deficient in the mentally feeble. For practice in this frames for

* See also *Physical Education*, by Lennox and Sturrock (Blackwood).

buttoning, lacing, and bow-tying, etc., have been patented as part of the Montessori method, though similar arrangements (*e.g.*, the fastening of clothes on a mannikin) have been in use in training institutions for defectives from time immemorial.

With regard to the more *ordinary school exercises*, we can only indicate a few points on which special stress should be laid in the case of mentally feeble children. "*Facta non verba*" should be the guiding principle; things done will make much more impression than things merely said; and whenever practicable, lessons should be illustrated by objects, for, as was remarked by Horace:

> "Segnius irritant animos demissa per aurem
> Quam quæ sunt oculis subjecta fidelibus."

Mere parrot-like repetitions of matters committed to memory should be discouraged; nothing should be learned by rote which is not understood, otherwise much labour may be lost, and at length we may find (with Longfellow) that

> "In an idiot's brain remembered words
> Hang empty mid the cobwebs of his dreams."

In this connection we may lay stress on the importance of simple conversational examination, in which the pupil is encouraged to take a full part, the teacher thus ascertaining how much the child has understood of a lesson, and encouraging the latter to add to his vocabulary and powers of language.

Object-lessons must start from the simplest facts within the child's observation. The names and uses of the sense-organs, of the limbs, of articles of clothing, of the furniture of the room, are some of the subjects upon which the child's intelligence should be exercised.

Nature-study is attractive to many, and is most

useful in educing and cultivating powers of observation.

Drawing and writing are best taught in the elementary stage by free-arm and large scale exercises on the blackboard chequer. Drawing lines vertically, horizontally, and obliquely, between points marked by the teacher, and afterwards delineating common objects under which the names may, with help, be printed and written,* pleasantly lead the children on both to **writing and reading,** and with regard to the latter it may be remarked that the "look and say" or "word" method is to be preferred to the old-fashioned plan of beginning with the drudgery of the alphabet.† Of course, the sounds and names of letters are learned at a later stage, words being dissected for this purpose with the aid of the letter-box. Madame Montessori has an ingenious system of cards upon which script letters of the alphabet cut in sandpaper are mounted, and over those forms the index-finger is passed in the direction in which the letter is formed in writing, as a preliminary exercise of the muscular, tactile, and visual sensations. These sensations are associated with the letter-sound, and writing, and subsequently reading, both of script and printed letters and words, are by this means acquired with more facility than by the ordinary method.‡

Calculation is the *crux* in educating the mentally deficient.§ Counting (so-called) may be glibly done

* See *Reading Made Easy*, Anna Snell. Philip and Son, London.

† Gill's "Regina Reading Sheets" are useful.

‡ *Montessori Method*, pp. 275, 303.

§ It is remarkable that in the case of candidates for admission to the London Special Classes there is often a certain ability to make small calculations as to pennyworths, such as they have been accustomed to in errands for their parents. With them reading seems to be the *crux*.

without any apprehension of the meaning of figures; consequently the concrete must always elucidate the abstract. Many excellent aids are published for this purpose, pictorial and otherwise; but the ingenious teacher will not be dependent on these, as the child's own fingers, the pupils in class, etc., are always available for demonstration. Shells, beads, and the abacus are also convenient objects for counting. To elucidate the value of weights, money, and to teach simple calculation, there is nothing better than the "shop lesson," an elaboration of the nursery game of shop, in which common groceries are weighed out and paid for by the pupils, problems in change being tackled practically.

Industrial training is intimately interwoven with educational processes, but will be specially treated in the next chapter.

CHAPTER X

INDUSTRIAL TRAINING AND RECREATION

To complete the educational fabric appropriate to mentally deficient children, the woof of **industrial training** must be closely interwoven with the warp of scholastic exercises, and a wholesome moral influence must be the pattern pervading the whole. In the present chapter we offer some hints as to special modes of industrial training found useful.

The " occupations " of the Kindergarten, selected so as to avoid too minute work, form attractive and serviceable preliminaries to handicraft. " Paper-weaving," for instance, is an excellent preparation for the more prosaic industry of stocking-darning, and the " pricker " used for perforated pictures will serve as an introduction to the cobbler's awl. Useful as are Kindergarten occupations for training the fingers, and, through them, the intelligence, the actual products of child-labour in the way of bead necklaces, variegated paper mats, clay and cardboard models, etc., have a distinct value in developing continuity of attention and stimulating further effort, as the principle of achieving a tangible result is specially satisfactory to the mentally feeble child. In this respect, industrial training has an advantage over mere book-learning, and it has been well remarked that feeble-minded children learn more with their hands than with their head. A judicious industrial

trainer, in fact, develops the child's intelligence *pari passu* with the use of his fingers.

The kind of employment most suitable differs with the particular characteristics of each case. With the majority, outdoor work is the best whenever practicable, and we have repeatedly seen both physical and mental development set going by such healthy occupation, when indoor teaching and employment had proved unavailing. Wherever and whenever practicable, the régime of an open-air school is the ideal to be aimed at in the instruction of defective, nervous, and backward children. Careful supervision is, of course, needed; otherwise, if put to weed a garden the child may ruthlessly root up plants as well. The love of seeing things grow, however, should be fostered, and the child will soon watch with interest how the seedling gradually becomes the plant. To every special school a children's garden should, if practicable, be attached. The care of plants in pots, the growing of bulbs and germination of acorns and chestnuts in glasses, and even growing mustard and cress on moistened flannel, are simple forms of Nature-study which delight the pupils of the London special classes. Kindness to animals should be inculcated; and, when this exists, occupation at a farm is often beneficial, much interest being taken in the stock.

For town-bred children, unfortunately, outdoor occupations are not, as a rule, available. There are, however, many varieties of manual training now commonly practised in connection with our public elementary schools and in technical classes in which the mentally feeble may participate. The making of woollen and cocoanut fibre mats, cloth and cane weaving, simple brush and basket making, straw-plaiting, sashline-making, are some of the arts easily

acquired which furnish a very pleasing result; and the same may be said of macramé work, which in our experience is an excellent exercise for those subject to finger twitches. We have elsewhere remarked that these athetotic patients frequently possess graphic and artistic ability; and for such, wood-work and even wood-carving form congenial employments. It is marvellous how, by persevering exercise of will-power, such pupils gradually overcome their spasmodic movements, and are at length able to execute quite fine work with the chisel and graving tool. Girls with athetoid affections often become, under training, good needlewomen, putting in their stitches with great regularity. The mysteries of knitting, crochet, and other fancy work, are also mastered by them; and we have seen a mentally feeble girl, crippled as to her right hand by spastic contractures, do fine-art needlework with her left. At some of the institutions lace-making is carried on with considerable success. An excellent handbook for trainers,* entitled "Industries for the Feeble-minded and Imbecile," has been published by Mr. A. Bickmore, the able Craftsmaster of the Darenth Industrial Colony. Practical advice is therein given as to the various industries found serviceable in a Poor Law institution, amongst which he mentions, in addition to wood-work and building handicrafts, such occupations as printing, book-binding, envelope and paper-bag making, cardboard-box making, tin-ware and metal-plate work, as well as the more ordinary trades of shoemaking, tailoring, and brush and basket making.

The practical needs of after-life must, of course, be borne in mind in selecting a particular employment.

* "Industries for the Feeble-minded and Imbecile," by A. Bickmore. London: Adlard and Son, 1913.

The gentleman's son, though comfortably provided for, will be all the happier for having an occupation to turn to; and for such, carpentry, wood-carving, and even turning, are good indoor pursuits, whilst gardening and farming are specially appropriate. Young ladies who by reason of their feeble-mindedness will be to some extent debarred from the ordinary pursuits of society should be encouraged to take an interest in domestic matters, and to assist in arranging floral decorations. They may also employ themselves in a variety of fancy work; and if they possess any artistic or musical tastes these should be cultivated.

For children of the working class some occupation which they can carry on under the eye of their parents is desirable. If they live in the country, they should be trained for agricultural labour, or to assist in garden work. If in town, some work which they can practise at home, or in *small* establishments, such as cobblering or tailoring, basket or doormat making, should be taught them; for obvious reasons they are unfit for factory work. It may be interesting to add that recent after-care statistics show a considerable number of ex-pupils of special schools serving with the colours (sixty so reported from Birmingham* and seventy-seven from London);† and in the Boer War an ex-patient of the Royal Albert Institution rendered creditable service in the 13th Hussars, assisting at the relief of Ladysmith, but ultimately succumbing to an illness contracted in his duties. The discipline and outdoor life of the army seem, indeed, beneficially suitable for the more intelligent cases of

* Report of Birmingham *Special Schools* After-care Sub-committee, June, 1915.

† After-care Association for Elder Mentally Defective Children of London, 1914.

good physique. Girls should be trained to work in the house and the laundry, to cook, and to make garments. Many imbeciles who have been brought up in institutions are quite capable of earning their living under favourable circumstances, but the "*res angusta domi*," and (too frequently also) parental incapacity, are *not* favourable circumstances, and consequently, if discharged to their own homes, there is much risk of training being thrown away. This is one of the arguments in favour of permanent custodial working-homes and colonies being instituted by private benevolence and public authorities for mentally deficient children capable of useful industry.

Recreation.—For mentally feeble, as well as other children, the maxim "*ne quid nimis*" is especially appropriate. Study and occupation must be varied; signs of fatigue watched for and guarded against; and relaxation is essential. But care must be taken that relaxation does not degenerate into loafing; suitable active recreation must be supplied. Mentally deficient children, particularly those of low grade, are apt to be of solitary habit; they have no idea of combination, even for games. Games of ball may, indeed, be practised alone, but they are much more useful when played with others in the form of rounders, cricket, hockey, or tennis. Football can only be played under special conditions—neither Rugby nor Association Rules; it forms a valuable exercise not only for the limbs but for the wits. Even golf may be played by feeble-minded people. Games at marbles are good for finger training. Trundling hoops, playing horses, etc., should also be encouraged. Skipping is an excellent exercise, for boys as well as girls, so long as the heart is all right. The game of battledore and shuttlecock is good training both for hand and eye. Of indoor recreations, dancing is to

be specially commended as tending to improve carriage and diminish the tricks of gait which often mark the mentally deficient. "Musical Chairs," "Post," and similar games, promote both activity and intelligence. Bagatelle is a good indoor diversion, the scoring being of educational value; and the game of dominoes helps in ideas of number. Even card games may be played by the more intelligent, and whist is an excellent exercise of memory. The "children's hour," so valuable an institution in normal nurseries, is specially useful with the mentally feeble, who often require to be *taught* to play, and sleep better for the romp before retiring.

The love for music which is common with the mentally feeble suggests attendance at concerts and at musical services as appropriate modes of enjoyment. With some a considerable sense of humour exists, and theatrical performances, especially when abounding in comic situations, are much appreciated. It is of importance that entertainments at which mentally deficient children are present should be of a refined character. Coarse buffoonery and scenes of violence—provocative to some weak minds of imitation—should be carefully avoided. In these days the cinema show can hardly be tabooed, but care is necessary as to the character of the pictures.

In concluding this chapter we may note with satisfaction the increasing importance which, as the result of experience, has of late years been attached to the place of manual work in the educational curriculum of the mentally deficient child. In his Annual Report for 1909 the Chief Medical Officer of the Board of Education writes as follows: "The introduction of manual instruction into the curriculum receives its practical sanction from the certainty that any attempt to train the feeble-minded child

through the abstract literary methods of the elementary school must be doomed to failure, and the mentally defective children will never be able to earn their living, entirely or partially, by any other than manual means." He proceeds to chronicle the developments in industrial instruction that had taken place in the Special Schools of the London, Birmingham, and Liverpool Education authorities, and in an appendix the subjoined "**Specimen Curricula for Schools for the Mentally Defective,**" which it will be noticed contain a gradually increasing proportion of manual training with advancing age, are set forth.

I.—A Specimen Curriculum for Junior Schools.

LONDON COUNTY COUNCIL—KENNINGTON ROAD JUNIOR SCHOOL.

Approximate Analysis of Time-Table for One Week.

	Hrs.	Mins.
Manual and Sense Training - - -	8	30
Elementary Subjects (including Scripture and Registration) - - - - -	7	55
Physical Education - - - - -	1	20
Voice-training, Singing, and Recitation -	2	15
Recreation - - - - - - -	2	30
Total - - - -	22	30

Subjects of Manual Instruction (Three Stages).

First Stage.—Drawing and Crayon Work, Canvas and Kindergarten, Sewing, easy Cane Weaving, easy Knotting, easy Loom Weaving, Modelling in Plasticine.

Second Stage.—Scale and Free Drawing, Paper-cutting, Loom Weaving, Straw Weaving, Cane Weaving, easy Rug-making, Canvas Work.

Third Stage.—Painting, Strip Work, Chair-caning, Basket Work, Rug-making, Knitting, Needlework, Cookery, Laundry.

II.—A Specimen Curriculum for Elder Boys.

LONDON COUNTY COUNCIL—BROOK GREEN SENIOR SCHOOL (ELDER BOYS).

Approximate Analysis of Time-Table for One Week.

	Classes 1, 2, and 3. Hrs. Mins.	*Classes 2, 4, and 6.* Hrs. Mins.
Manual Work - - -	11 20	12 0
Elementary Subjects (including Scripture and Registration) - -	6 10	5 30
Physical Education - -	3 0	3 0
Singing and Recitation -	1 10	1 10
Recreation - - -	2 30	2 30
Total - - -	24 10	24 10

Subjects of Manual Instruction.

Drawing, Clay Modelling, Gardening, Carpentry, Joinery, Wood Carving, Metalwork, Tailoring, Boot Making and Mending.

III.—A Specimen Curriculum for Elder Girls.

LONDON COUNTY COUNCIL—PRIORY ROAD SENIOR SCHOOL (ELDER GIRLS).

Approximate Analysis of Time-Table for One Week.

	Classes A and B. Hrs. Mins.	*Classes C and D.* Hrs. Mins.
Manual Work - - -	10 50	10 20
Elementary Subjects (including Scripture and Registration) - -	6 20	6 20
Physical Education - -	1 15	1 45
Singing and Recitation -	1 35	1 35
Recreation - - -	2 30	2 30
Total - - -	22 30	22 30

Subjects of Manual Instruction.

1. Drawing to Scale, Colour Drawing, Clay Modelling.
2. Needlework, Fancy Sewing, Mending of Garments, Cutting-out (paper) Patterns, Use of Sewing Machine.
3. Cookery, Laundry, Housewifery.

From returns kindly furnished by Mrs. Burgwin, we learn that in the London County Council Special Schools for Elder Boys the proportion of time now devoted to handicrafts is even greater than that specified above, varying from fifteen hours a week for the more advanced boys to ten for beginners. The balance of the twenty-five hours now forming the school week in Elder Boys' Departments is devoted to ordinary classwork. A typical Time-Table is printed in Appendix D, pp. 262-263.

CHAPTER XI

MORAL TRAINING

If good **moral training** be a prime essential in every system of education, it is specially so in the case of mentally deficient children. Not that the mentally feeble child is by nature morally worse than the ordinary child, but his weakness makes him more open to suggestion, so that an evil example—not to say precept—may in his case be specially injurious. It is a curious and lamentable fact that when the inhibitive nerve power is weakened, either from disease or from original defect, the lower nature is apt to assert itself, both in deed and word; and it is sometimes a matter of surprise how mentally feeble persons, notwithstanding good surroundings, give vent to the most evil language, profane or obscene. Even the hasty word, carelessly uttered, may be taken up by the weak-minded child, and reproduced on some inconvenient occasion. Great care, therefore, should be taken by all in charge of such cases to be choice in their language, as well as correct in their conduct; for imitation is characteristic of the class. On the other hand, a good moral influence is insensibly exercised by those who are judicious, and the choice of a teacher or attendant is a matter of supreme importance, moral as well as mental qualifications calling for consideration.

As regards **moral discipline,** coaxing, not coercion,

must be the guiding principle. With the mentally deficient especially, "force is no remedy"; the "cowed" child will be a cowardly child, with no pluck or spirit to advance itself. As Roger Ascham remarks with regard to the ordinary pupil, he must in no wise be "beaten into the hatred of learning"; and not only in the scholastic, but in the general management of the mentally deficient child, love must be the all-pervading principle. At the same time judicious firmness must be exercised; and consistency in word and deed, combined with tact, are essential to moral influence. The mentally feeble, like the ordinary child, soon finds out to whom he must render prompt obedience. It is specially true of him that he cannot "serve two masters," and attempts at dual control are apt to result in failure. This should be borne in mind in making arrangements with a governess, whose influence should not be impaired by unnecessary parental interference.

A system of rewards and punishments, modified, of course, to meet individual peculiarities, is efficacious with this class as with others. Mentally deficient children are frequently eager to obtain the commendation of their superiors, and sometimes withholding commendation will make sufficient impression; at other times words of reproof are necessary. The Regulations of the Board of Control prohibit the administration of corporal punishment to any patient in institutions for mental defectives. It is true that corporal punishment is rarely beneficial; yet there are cases where pain wantonly inflicted on others is appropriately visited by pain inflicted on the offender. Sometimes an appeal to the mind is best made through the stomach: in many instances the cutting off of some favourite article of food (*e.g.*, pudding or sugar) from the day's dietary will mark disapproval better

than any other procedure. The deprivation of some looked-for pleasure, such as attending an entertainment or going to church, will be efficacious in many cases; with younger children the temporary forfeiture of a favourite toy is all that is necessary. Older cases occasionally (perhaps exceptionally) develop a keen interest in the value of money, and such are best touched by an abatement of their allowance, or the enforcement of a fine.

With the growth of intelligence it must be pointed out that harm, followed by punishment, inevitably results from evil doing, and that

> **" Though the mills of God grind slowly, yet they grind exceeding small;**
> **Though with patience He stands waiting, with exactness grinds He all."**

The weak-minded person is not to be encouraged in the notion—but too easily taken up with dangerous consequences—that, because he is not quite like other men, he is less responsible for his actions. From foibles he should, of course, be guarded; and he should learn to respect his neighbour, and act on the legal maxim, " Sic utere tuo, ut alienum non lædas."

Perhaps the most trying case we are called on to deal with amongst children mentally abnormal—though, indeed, there may be but little evidence of intellectual deficiency—is that of the **moral imbecile.** The despair of his parents, the *bête noir* of the institution, the perplexing puzzle of the jurist—he seems to be the ill-fated product of inherited nervous instability and ancestral criminal instincts. In the Mental Deficiency Act, 1913, **moral imbeciles** are defined as " persons who from an early age display some permanent mental defect, coupled with strong vicious or criminal propensities, on which punish-

ment has had little or no deterrent effect." It must be noted that three conditions qualify this definition: (*a*) *mental* defect coupled with the moral infirmity shown, (*b*) displayed *from an early age*, and (*c*) of a *permanent* character. In practice it will be found that these qualifications materially narrow the application of the term "moral imbecile" for legal purposes. If, however, we may judge from a legal decision given (in 1914) in the case of a highly educated B.Sc. London and Whitworth scholar convicted at the Old Bailey of fraudulent conduct, but subsequently dealt with by the Judge as a moral imbecile under the Mental Deficiency Act, it would appear that but slight evidence of mental defect may be held sufficient.

With regard to the class of moral defectives as found in the London schools, we venture to extract from Dr. Kerr's Report, presented to the London County Council Education Committee in May, 1909, the following apposite paragraphs:

"**Moral Defectives and Permanent Custodial Treatment.**—The necessity for compulsory powers of detention in custodial schools till sixteen, and later for the rest of life, of certain moral defectives is a most pressing matter. For instance, just as we find in cases of pure word-blindness a defect of a particular region of the brain, sometimes as an hereditary failing which may occur in children normal in other respects, or combined with any amount of other defect, from mere dulness to low-grade mental defect, imbecility, or idiocy, so cases are found of morally defective children who vary in mental capacity from some cases which are exceedingly clever in other respects to children who are so bad as to be classed as imbecile. Very commonly, through such individuals being on what might be considered as a lower scale of mental development than normal, the emotions are much more developed relatively than the intellectual qualities which give re-

straint, so that they are exceedingly plausible in speech, and have a peculiarly attractive gift of adapting themselves, smiles or tears being available with equal ease according to their environment. There are great differences in the way the defect is manifested. It is almost impossible yet to classify them, but a provisional arrangement might be made into—(1) Passive; (2) Active.

"1. PASSIVE CASES (ONLY PASSIVE TROUBLE IN SCHOOL CONDUCT).—(*a*) Children who have irregular but recurrent outbursts, showing moral defect in slight degrees amounting to uncontrollable bad temper, often with a complete heedlessness of all correction or advice, and very often a tendency to roam or wander away. These cases are probably of an epileptic nature, and require detention, and are to be regarded as cases of disease.

"(*b*) Children who seem merely not to be amenable to discipline. This is a large class, and I think a very large proportion would be taught habits of obedience by regular and inflexible corporal punishment. Most of them are subjects for industrial training later on, but they often present other defects—*e.g.*, word-blindness.

"2. ACTIVE CASES (ACTIVE TROUBLES TO THE TEACHERS).—(*a*) Children who are only differentiated from the first of the class above by their violence and destructiveness in their outbursts of rage, almost unprovoked at times, and quite irregular. For the greater part of their time such children are inoffensive, sometimes clever, often dull, stupid, or even sullen, but in a rage behave as uncontrollable lunatics. They are, however, comparatively rare.

"(*b*) Murderous tendencies from pure cruelty (quarrelling, pinching, biting others, infliction of cruelty on young children, or killing of animals). In particular cases these children are very objectionable in school. Manslaughter has been committed by children of innocent, pleasant, and in one case almost angelic appearance. There is every grade of mental attainment among these children afflicted with this lust of cruelty.

"(*c*) Interference with the opposite sex shows itself in

boys, but most objectionably in girls. There is every grade, from the natural attraction of the sexes to the most flagrant and offensive behaviour requiring the attention of the police. Here, again, mental capacity may vary from children who are quite normal in school-work to those who are low-grade mental defectives. This particular type of girl is most difficult to deal with. It is of vital importance to place them in residential schools, and separate them from other children of the same age, because, though numerically few, they constitute a most vicious element, a leaven of evil among the girls with whom they are compelled to mix. It is principally for the sake of others that this policy is proposed.

* * * * *

"A much more humane and scientific idea than mere segregation, and more economical to the State, would be to deprive such individuals of the objectionable powers and capacities, at the same time relieving them of the passions and desires before the time at which these develop."

The last paragraph refers, of course, to methods of surgical sterilisation, which during the last few years have been strongly advocated in some quarters. In America eight of the States of the Union have laws which authorise or require such procedure in certain classes of defectives and degenerates—viz., Indiana, Connecticut, Washington, California, Iowa, Nevada, New Jersey, and New York; the first (in Indiana) having been enacted in 1907, the last (in New York) in 1912. In all these enactments the determination of the individual to be operated on is entrusted to a State Commission or Board, and vasectomy (excision of a portion of the vas deferens) in the male, and salpingectomy (excision of the Fallopian tubes) in the female, are the operations usually resorted to. The conclusions arrived at by a committee of well-known

experts, who recently investigated the results attained under this legislation, are that, while vasectomy is a simple innocuous method of procuring sterility in the male, though not always permanently, and not otherwise interfering with sexual function, there is a certain risk to life in the case of females, and occasionally of serious mental disturbance in both sexes. On the whole, American experience does not afford enthusiastic support to the oft-vaunted practice of surgical sterilisation, and it is stated that, "except in Indiana and in California, little or nothing has been done to carry out the laws authorising it."*

The police in many large centres of population know children, members sometimes of respectable families, whom they shrink from prosecuting, but whom they cannot otherwise restrain from crime. Schools of the highest class are not unfrequently confronted with the problems that arise from the presence of an undesirable pupil of this type. He, or she, may combine the most innocent, sometimes engaging, external appearance with an inner depth of cunning and iniquity which requires to be experienced to be appreciated. The sudden impulses to mischief occurring in these cases are sometimes of an epileptoid character, and paroxysms may in such cases be cut short by bromides. But as a rule moral discipline is of little avail; punishment may be administered, and professions of penitence called forth, only to be forgotten as soon as the mental disturbance again recurs. The original author has a vivid recollection of three nice-looking children, sisters and brother, formerly under his care, who at times would appear models of propriety, while at others they had all the characteristics of little demons. With innocent expression they would furtively accom-

* *Journal of Psycho-Asthenics*, June, 1914.

plish the most abominable mischief, and, after meekly acknowledging the error of their ways, would emphasise their apology by a missile flung at the head of the person who had attempted to bring them to repentance! Such children would in old time have been called "possessed"; now they are classified as cases of moral imbecility or juvenile insanity. Dr. Samuel J. Fort has described similar cases under the title of "Psychical Epilepsy"*; and in his Goulstonian Lectures for 1902 Dr. G. F. Still points out that a severe bout of convulsions in infancy is sometimes followed by arrest of moral development. Arson is a crime that has a special fascination for these degenerates, and so has the placing of obstructions on railways. The catastrophes that may result in consequence furnish a strong argument for permanent detention. It occasionally happens, however, that moral aberrations of a more transient character are met with in young people of neurotic heritage, whose unstable mental equilibrium has been upset by the strain of pubescence. Such are the cases in which a propensity to petty peculation develops itself in boys or girls who have previously borne good characters at a high-class school; it is sometimes accompanied by other eccentricities of conduct, and is often apparently motiveless. Our experience has been that on removal to an appropriate environment many of these cases improve under tactful management, and when the stress of pubescent development has subsided, there may be a gradual restoration of moral control.

In other disappointing cases we find considerable improvement in intelligence and manual skill with actual deterioration of the moral sense. Intelligence and skill which have been acquired are, indeed,

* *Proc. Association Amer. Institution for Idiotic and Feeble-minded Persons*, 1894, p. 400.

used for evil purposes; and Dr. Kerlin, the former Superintendent of the Pennsylvania Institution, who paid much attention to this class, came to the conclusion " that to educate them often gave them added power for evil, and that they should not be allowed to prey upon society." He claimed that moral imbeciles " should be treated in a class apart in buildings by themselves, as they affect the methods of living and training of the rest."* Dr. Jules Morel has, in an able communication to the Medico-Psychological Association,† advocated the establishment of special institutions, intermediate between reformatories and asylums, wherein " such persons should be objects of prophylactic treatment against crime." Similar views have been expressed by Dr. Barr, who succeeded Dr. Kerlin in charge of the Pennsylvania Institution. In his communication to the section of the Royal Commission on the Care and Control of the Feeble-minded which visited America, he stated, in reference to the patients under his charge at Elwyn: " Many of the children are absolute criminals. Some are the victims of circumstances, but the absolutely bad children we cannot do anything with. We have fifty to seventy-five of them. I think our Government should take up the question of these children. I should have these form a national colony on the bad lands of the West, to be taken care of under military discipline."‡ In our own country the Board of Control are dealing with the problem by the pro-

* *Forty-First Annual Report, Pennsylvania Training School.* Philadelphia, 1893.

† *Journal of Mental Science*, vol. xl., p. 599.

‡ *Report of the Members of the Royal Commission on the Care and Control of the Feeble-minded upon their Visit to American Institutions* (vol. vii.).

vision of a State Institution for defectives of marked dangerous or violent propensities.

There is need for caution in institution arrangements for the mentally feeble class that *egoism*, which often springs from their solitary instincts, be not pandered to, but rather that altruistic views should be enforced. The golden rule that even the feeble-minded should "do unto others as they would be done by" should be inculcated. Happily, such persons are often susceptible, not only to moral, but to religious influences. Their very simplicity leads them to accept without hesitation ideas of a Universal Father, who is at the same time an all-seeing God, of a loving Saviour, and of a sanctifying Spirit; and however imperfect may be their comprehension of these mysteries, there is no doubt that such notions tend to exert a wholesome restraining influence upon conduct.

CHAPTER XII

RESULTS AND CONCLUSIONS

In this closing chapter we propose to discuss the results which have accrued from the system of treatment and training we have endeavoured to describe, and to formulate some conclusions as to the value of the work.

The pessimism of the early part of the nineteenth century has fortunately been put out of court by the results obtained. Nearly every case is amenable to training, and capable of improving to a certain extent, with the result of rendering existence healthier and happier, and less burdensome to others. A considerable proportion can be "taught to conform to moral and social law, and rendered capable of order,"* and many "become capable of the ordinary transactions of life under friendly control, of understanding moral and social abstractions" †; while, in the special case of cretins and other aments suffering from some glandular deficiency, almost complete amelioration of the symptoms may be obtained.

The experience of institutions for training youthful defectives both in this country and in America goes to confirm the accuracy of Séguin's prognostications. The statistics of the Royal Albert Asylum, Lancaster,

* E. Séguin, *Idiocy, and its Treatment by the Physiological Method*, New York, 1866.

† *Ibid.*

gathered by Dr. Shuttleworth in 1890, with regard to the after-career of pupils discharged on completion of their seven years' training, showed that 10 per cent. were, or had been, earning wages; that 5 per cent. were remuneratively employed at home; and that 3·5 per cent., in addition, were capable of earning wages if suitable situations could be found for them. About 22 per cent. were reported to be more or less useful to their friends at home, while another 22 per cent. were said to be of little or no use; 29 per cent. had gravitated to workhouses and lunatic asylums; the remainder (8·5 per cent.) had died. In the Jubilee Report of the Royal Albert Institution (1914) it is stated that 10 per cent. of the patients discharged (from an aggregate of 3,433 who had been under training) had been rendered self-supporting, while not less than 82 per cent. had shown evidence of noticeable improvement. A case is cited of a boy earning 37s. a week in a Yorkshire bakery, and another of a patient, discharged twenty years previously, who gets 30s. a week "at a great dye-works near Leeds, and has never lost a day's work, except on the occasion of a strike, with which he had nothing to do." It must not, however, be imagined that even the best of the above were in all respects equal to persons of average intelligence. Some residual peculiarity usually remains to handicap the feeble-minded in the race of life.

"It is not, indeed, to be expected that without some form of tutelage even the trained defective can hold his own in the outside world, and in the majority of cases it may be appropriately said:

> "'Tis not enough to help the feeble up,
> But to support him after."*

* *Twenty-seventh Annual Report, Royal Albert Asylum*, p. 40.

There is no doubt, however, that such support is rendered infinitely easier by methodical training, and the burden to the friends much lighter.

Before quoting further figures, it is necessary to explain that those of different institutions and societies can scarcely be compared; so much depends on the grade and type of mental defect selected. Till the passing of the Mental Deficiency Act, 1913, we had no generally accepted definitions, far less any universal standard. Under these circumstances statistics are chiefly of value as showing the possibilities and limitations.

The necessity for **after-care** has been established on *a priori* grounds; it is interesting to see the results. For this purpose we will take the records of the Birmingham After-care (Education) Committee, which was the first to undertake this work. Founded in 1901 by Mrs. Hume Pinsent, it is now able to formulate fourteen years' experience. The last annual report (dated June 25, 1915) states, that of the 1,436 cases (876 males, 560 females) observed—

495 are doing remunerative work; of these 415 are earning wages which average 10s. 2d. per week. 279 are males, earning from 1s. 6d. to 35s. per week (average 11s. 7d.); and 136 are females earning from 3s. to 20s. per week (average 7s. 5d.). 59 youths are soldiers. 18 girls are employed from home in domestic work. 13 (8 m., 5 f.) work with their relations at home in simple trades, without wages. 126 (47 m., 79 f.) are living at home and doing unpaid work. 41 (17 m., 24 f.) were dismissed from special schools as incapable, through physical or mental disability. 121 (76 m., 45 f.) have been transferred to ordinary schools. 5 (4 m., 1 f.) have been transferred to schools for the deaf; 1 (m.) to an open-air school;

1 (m.) to a private school; 7 (3 m., 4 f.) removed to special schools in other towns; 18 (16 m., 2 f.) are in residential schools for mental defectives; 81 (42 m., 39 f.) are in workhouses; 138 (76 m., 62 f.) are in other institutions, including 91 (54 m., 37 f.) in the Monyhull Colony, and 17 in lunatic asylums. 52 (31 m., 21 f.) have died, and 337 (213 m., 124 f.) lost sight of.

The committee have frequently stated in their reports that for a large percentage of the feeble-minded permanent supervision is necessary for the following reasons:

"1. To enable them to contribute to their own support.

"2. To save them from harsh treatment at home and in the streets.

"3. To prevent their becoming drunkards, criminals, and prostitutes.

"4. To prevent their giving birth to children who can only grow up to be a burden to the community."

With these statistics from Birmingham we may compare the following extract from the Report of the After-care Committee of the London County Council for 1915, with reference to those discharged from the London Special Schools during the previous three years. This "shows that from November, 1910, to November, 1914, 1,448 children left the schools for elder mentally defective children and came under the notice of the association. Of these, 812 (55 per cent.) were in work in October, 1914, including 72 males who were serving with His Majesty's forces. In the previous year it was reported that 72 per cent. were in work, while, of the whole 1,198, 103 were out of employment, 133 had been lost sight of, 42 were in institutions, 46 were not reported upon, and 7 were dead."

These figures, if somewhat more favourable than those from Birmingham, extend over a much briefer period, and, in the long-run, no doubt will support the view of the necessity of permanent care for the majority of cases. As a matter of fact, the Birmingham committee have pointed out that much more satisfactory returns are obtained when only those who have recently left school are considered. They said in their 1914 report that "it is important to remember that the large majority in employment are boys and girls who have recently left school. Of the 397 in employment, only 54 are over twenty-one years of age, and only 16 of these are over twenty-five; but 343 are of ages varying from fourteen to twenty-one years. Of the latter group, the large majority (240) are of ages varying from fourteen to seventeen years, as compared with 103 of ages from eighteen to twenty-one. It is significant that the age at which there are most workers is sixteen."

Mr. E. W. Locke, Superintendent of the Western Counties Idiot Asylum at Starcross, when giving evidence before the Royal Commission on the Care and Control of the Feeble-minded, said: "I think that during the last ten years about forty children have been placed out in the world. I have information from about twenty of them; several of those are earning their own living independently, but they were brilliant exceptions; the others were living at home, and making themselves of use, going out to work, for instance, in gardens, or doing needlework at home, and so on." But he added, with regard to those who are discharged: "They ought not to go out into the world, any of them, never mind how competent they are to work." The subsequent comment by the

Commissioners was: "This view is held by all our witnesses in regard to this branch of work."*

Dr. E. B. Sherlock has recently published an interesting estimate of the earning capacity of mental defectives employed at the Darenth Industrial Colony. He points out that the net profit of the patients' work in such an establishment must needs be affected by such considerations as the following:—First, teachers and industrial attendants command higher salaries than ordinary attendants; secondly, the working patients require better feeding than others; and finally, their hours of labour are necessarily shorter than those current in the various trades, and these he estimates at 35 per week. He proceeds:

"In order to obtain information as to the actual earning powers of the patients at Darenth an inquiry has been made into the capacity of each individual over the age of fourteen years, that age being taken as the one at which persons not mentally defective and of the same social class as the patients might be expected to contribute something towards their own maintenance. To arrive at anything like a satisfactory valuation has proved to be a matter of extreme difficulty, and the results obtained are incomplete and probably vitiated by numerous errors. Nevertheless, they appear to have sufficient interest to make the publication of them desirable.

"For imbeciles, the average earning capacity per week in the following industries was:—Males: Mat-making, 3s. 2d.; brush-making, 3s. 10d.; boot-making, 5s. 8d; tailoring, 6s.; upholstering, 7s.;

* *Report of the Royal Commission on the Care and Control of the Feeble-minded*, vol. viii., p. 159.

basket-making, 7s. 2d.; carpentry, 9s. 3d.; painting, 6s.; printing, 7s.; book-binding, 4s. 9d.; metal-working, 8s. 3d.; wood-chopping, 2s. 6d.; carting, 2s.; school industries, 1s.; odd jobs, 1s.

"For females the average earning capacity was :— Needlework, 1s. 8d.; upholstering, 2s. 9d.; bag-making, 9½d.; machine knitting, 7s. 1d.; brush-making, 1s. 4d.; rug-making, 4s.; school industries, 1s. 1d.

"For the feeble-minded males the average earning capacity was:—Farming, 4s. 9d.; boot-making, 6s. 3d.; tailoring, 5s. 4d.; cord-making, 1s. 3d.; laundry work, 5s.

"For feeble-minded females the average earning capacity was:—Needlework, 1s. 4d.; laundry work, 2s. 1d.; machine and other knitting, 4s. 6d."

With regard to American experiences, we will quote from a paper by Dr. Walter E. Fernald, of Waverley. He says: "Each year a certain number of persons (trained in industrial work) go out from these institutions [for the feeble-minded], and lead useful, harmless lives. Some of the institutions where only the brightest class of imbeciles are received, and where the system of industrial training has been very carefully carried out, report that from 20 to 30 per cent. of the pupils are discharged as absolutely self-supporting. In other institutions, where the lower-grade cases are received, the percentage of cases so discharged is considerably less. It is safe to say that not over 10 to 15 per cent. of our inmates can be made self-supporting, in the sense of going out into the community and securing and retaining a situation, and prudently spending their earnings. With all our training we cannot give our pupils that indispensable something known as good, plain *common-sense*. The

amount and value of their labour depend upon the amount of oversight and supervision practicable. But it is safe to say that over 50 per cent. of the adults of the higher grade who have been under training from childhood are capable, under intelligent supervision, of doing a sufficient amount of work to pay for the actual cost of their support, whether in an institution or at home."

In support of the claim for after-care, and as an embodiment of the most recent ideas in America on this question, we cannot do better than quote from the conclusions summarised by the members of the Royal Commisson on the Care and Control of the Feeble-minded who visited that country:

"Most of the American institutions were started as schools for feeble-minded children, under the idea which prevailed that a large number of these could be educated so as to be able to take their place in the world alongside of their normal brothers and sisters. This idea has been modified by experience, and now it is the opinion of those whom we consulted that it is only a very small fraction of the feeble-minded who can stand alone, however excellent their education may have been. Two results flow from this: Firstly, although in some places the system of education still follows on the lines of that given in schools for normal children, in those institutions which appeared to us to be the most scientifically organised there is now a tendency to limit the instruction to such manual work as the feeble-minded are found able to perform, and as will afford them occupation and happiness as inmates of permanent working homes. Secondly, the opinion has now become general that the provision of schools for feeble-minded children must be accompanied by permanent homes for adults. The present schools have become congested with adults who have grown up in the school, and whom the managers have felt constrained to retain there for fear of the

disasters which would have fallen upon the adolescent if turned adrift into the world. Hence, those interested in the American institutions have induced the State Legislatures to allow of the establishment of departments or branches for adults, into which they can draft the children who have passed school age, and also admit from outside feeble-minded adult men and women whom the Poor Law or other public authority may think require the protection of a home. Expert opinion condemns as ineffective and wasteful an institution which lacks a custodial department or colony or other annexe for adults."

Nevertheless, it is not quite fair to conclude that the benefits of training institutions, as at present organised, are merely to be measured by appraising the proportion of those sent out able to earn their own living. This, of course, is a positive gain, but there are benefits, which we may call negative, hardly less appreciated by those on whom the care of the mentally deficient falls. That a child should no longer be uncleanly, mischievous, or destructive, in habits; that it should cease to disturb the peace of the household by discordant cries, and by untimely wanderings, are points which parents thankfully recognise; and if, in addition, it can be taught to undress and dress itself, to feed itself, and to behave with propriety, these results are by no means despicable, even from the economical point of view. It must not be forgotten that the charge of an untrained idiot at home usually monopolises the time of one of the older members of the family, who is thus prevented from earning wages; and without *judicious* training and discipline deterioration is pretty sure to occur. Even in the best-regulated families the care of a defective child is a constant anxiety; how much more in the labourer's cottage, where oftentimes only

casual attention can be given to it? The relief to parents afforded by Institution treatment is well illustrated in the Report for 1894 of the superintendent of the Eastern Counties Asylum. He gives a striking example of a mischievous imbecile, who "describes with great glee how (before admission) he was left to mind the baby, and blacked its face all over with soot, so that when his mother returned she might think she had a black baby; how his little sister wanted some water, and he told her to drink out of the kettle on the fire, by which she nearly lost her life; and how he was turned out of the Parish Church, during service, for pricking a boy with a pin, so that he yelled out and disturbed the whole congregation!"

For improved cases, able to take situations on leaving Training Institutions, it seems very desirable that there should be established in all parts of the country some organisation of philanthropic persons willing to exercise a friendly supervision, such as the After-care Committees in London, Birmingham, and other English centres, and certain Continental cities.* Since the passing of the Mental Deficiency Act, much has been accomplished in this direction by the establishment of the Central Association for the Care of the Mentally Defective, under the able chairmanship of Mr. Leslie Scott, K.C., M.P., with Miss Evelyn Fox as Honorary Secretary. This association, which has offices at Queen Anne's Chambers, Tothill Street, Westminster, has co-ordinated several of the existing After-care Societies, and stimulated the formation of others. Through its agency, overlapping in this charitable work will be prevented, new workers

* *Treatment of Feeble-minded: Question of After-care.* Shuttleworth, 1904.

will have the benefit of the experience that has been gained, and all reports will be kept on similar lines. Recently it has developed other useful activities in the direction of providing training for special teachers. Unfortunately, while the Mental Deficiency Act in Section 48 encourages the formation of After-care Committees, and provides them with money from Parliamentary grant for the purpose of assisting and supervising defectives, it does not make this an obligatory duty. When a defective is withdrawn or discharged from a special school on or before attaining the age of sixteen, without a notice being sent by the local education authority to the local authority under the Act that he is an imbecile or detrimental to the other children in school, or that it would be to his benefit that he should be sent to an institution or placed under guardianship, there is no statutory obligation for his supervision. It is, however, only fair to say that we have known some remarkable instances of permanent improvement resulting from training. A former institution pupil, an example of the class now designated "feeble-minded" as distinguished from imbecile, though for a period an inmate of the Royal Albert Asylum, became, under instruction, an expert joiner, and (what was even more remarkable) from being a very imp of mischief grew up into a well-conducted, self-reliant youth, and ultimately emigrated to one of our colonies. When last heard of, he was practising his trade in a leading city, and in a letter home reported himself as doing well, business being brisk in consequence of a conflagration which had recently occurred! In another instance of mild defect, the result of an injury in infancy, treated at the Royal Albert Asylum with great benefit, a girl, after dis-

charge, got respectably married, and is said to be an excellent housewife.

It is remarkable that of nearly a thousand discharged patients who had passed under observation at the Royal Albert Asylum the two just mentioned are the only instances in which we have known marriages occur. It has, indeed, been urged as an objection to educating mentally deficient children, and fitting them for work in the world, that they would be thereby encouraged to marry, and, in consequence, there would be a risk of multiplying mental defect in the progeny. Our experience, however, does not altogether support this view. It is quite true that the mentally defective, when left to themselves, do produce, both in and out of wedlock, a considerable number of children, many of whom exhibit the same weakness as their parents. Dr. Potts, when working at Stoke-on-Trent for the Royal Commission on the Care and Control of the Feeble-minded, collected clear evidence on this point. It does not, however, hold good to the same extent in the case of those who have had judicious training in such an institution as the Royal Albert Asylum. In one case, that of a youth who, after a long period of institution training, had become an industrious labourer, and was earning eighteen shillings a week, we ventured to ventilate the subject of marriage. The young man had been telling us how, in addition to paying for his board, he had been able to accumulate a fair amount in the Post-Office Savings Bank. "Well," we suggested tentatively, "perhaps you are saving up against getting married." "Nay, nay, doctor," was the reply; "it's hard enough for a feller to keep hisself, let alone bothering with a girl!" Such philosophy as this is rarely met with in the social class to which this youth

belongs, or we should hear less of improvident marriages. The effect of judicious training seems to be to impress upon the improved imbecile that he is not quite like other men, and must not undertake the responsibilities of married life. Certainly, the net result of training is to diminish the risk of transmitting the evil to another generation, inasmuch as moral principles are instilled which have a restraining influence on conduct. Moreover, the very fact of healthy occupation tends to keep in check the animal passions, which are apt to run riot when the adolescent imbecile is unemployed. This is one, amongst other reasons, for the establishment of permanent industrial homes like those belonging and affiliated to the National Association for the Feeble-minded.

Considerable experience in the training of mentally peculiar children of the well-to-do class has convinced us of the benefit resulting from appropriate education commenced at an early age, if due care be taken to provide them after school life with occupations suitable to their capacities under some degree of judicious supervision. We can point to cases in which artistic and musical talents have been developed in such a way as to render subsequent home life resourceful and no longer a burden to the relatives, and to others in which occupation in such pursuits as horticulture and farming has furnished a useful career.

The history of legislation for the benefit of educable feeble-minded as distinguished from *imbecile* children has already been given, and we have now had more than twenty years' practical experience of special classes for exceptional children in elementary day-schools. We think we can fairly claim that, where tried, they have filled up a *lacuna* in the scheme of national education. In the words of the Report of

the Royal Commission on the Care and Control of the Feeble-minded:

"It [*i.e.*, the establishment of special schools] gave to those interested in education the first opportunity of trying what could be done for these children on day-school lines and under a special curriculum. Whether the number of those who, when they left school, could materially support themselves were few or many, it helped to make the larger number of the children cleaner in person and habits, more orderly and more moral; it did this where the parents cared for their children and wished to do the best for them, and it did it, as far as might be, where the parents were careless and inconsiderate of their children's welfare. The scrutiny of the lives and mental condition of children, made in consequence of the investigations of Dr. Francis Warner, Dr. Shuttleworth, and others, led to the passing of the Act; and the Act itself has been instrumental in producing still further inquiries of the same nature."

The Report then goes on to show that it might not be altogether wise to continue simply on the same lines, and merely make the Elementary Education (Defective and Epileptic Children) Act, 1899, compulsory. It explains that the demand which the Act first created has assumed larger proportions.

"Schooling* in personal habits was found to be the first step in education. Then, more and more, it was made evident that the intelligence was roused through the hands and eyes working together in making or doing some actual thing, rather than by the secondary and more abstract accomplishments of reading, writing, and arithmetic. This suggested great changes in teaching. And now, in the opinion of many, the simple 'occupations' of the earliest years of schooling should develop into systematic industrial teaching, while the 'scholastic'

* *Report of Royal Commission on Care and Control of Feeble-minded*, p. 103, par. 338.

teaching should become entirely subordinate, and, indeed, in some cases should be discontinued. But, as we have seen, criticism has gone farther still. Analysis has shown that the special school by itself is largely unserviceable, from the point of view of the after-life of the child. The feeble-minded child can, in the main, become only a feeble-minded adult, educated into a rather better routine of thought and habit. If special education is required on his behalf in his school-days, special care will probably be necessary for him when he has left school; and, moreover, later on in life. All this, by degrees, the Act of 1899 has enabled many to learn."

Hence the idea that

"either the special classes will become classes for the dull and backward, from which the feeble-minded, except, possibly, those who are of the very highest type, will, by degrees, be excluded; or, as at Leicester, new classes for the backward will be started, and the present classes for the feeble-minded will be continued as a kind of lowest class of all, and will be supplemented to a much larger extent by institutional care of some kind. According to our judgment, this 'backward' class should remain under the direct control of the education authorities, for the children in them could not be certified; while the children who are or may become certifiable as mentally defective should fall within the province of the Committee for the Care of the Mentally Defective, who, either directly or by contract with the education authorities, should provide for them."

In a paper on the Result of Special School Education read at the Conference of the National Special Schools Union in Birmingham in 1910, Mrs. Hume Pinsent said, in regard to the children who remain in special schools, that "it is quite exceptional for any of them to reach a higher educational position than that attained in Standard II. This means that at

sixteen the best of them will be able to read and calculate to about the same extent as a normal child of eight or nine. The numbers who attain to Standard II. are variously stated by witnesses as from 40 to 58 per cent., at the best only about half the total number." "If it is a question of pleasure or profit to be obtained from reading, I am afraid we cannot flatter ourselves that special school teaching confers this benefit on the mentally defective; for to read for pleasure after school age a far greater ease and fluency must be obtained than is represented by Standard II. Only about half get even as far as this." After pleading for more manual work, Mrs. Pinsent goes on to say that, "Just as their manual work, though fair in its results when done under supervision, has no value in the open market, so their frail morality, when severed from the ever-present sanction of the teacher, falls to pieces on contact with the outside world, and succumbs to every temptation."

As regards the results attained in the Residential Homes charitably founded for feeble-minded girls beyond school age, it must suffice to say that in some of those longest established an appreciable portion of income is derived from payments for the work of the inmates. Thus it has been calculated that at the Homes of Industry, established near Birmingham in 1892 by the late Miss Stacey, for feeble-minded girls, more than 2s. per head per week is on the average made by the labour of the 45 inmates in aid of maintenance, the weekly rate for which is about 8s. 9d. It was stated, however, in the evidence before the Royal Commission, that, although these Homes are mainly custodial, out of 101 discharged for various reasons, not more than 3 were really fit to return to ordinary life. The industries carried on in the Homes consist

principally of laundry work and of mat and rug making.

The results obtained by more recent homes, if less successful financially, are distinctly encouraging. Thus the National Association Report of Alexander House (a working home for 19 girls over fourteen at Hammersmith), after eight years' working, stated: "There are now 8 girls in service, who are regularly visited. Of these, 4 are going on well; the others leave their situations frequently, their mental deficiencies making them unable to work steadily for any length of time." Further experience has, however, proved the need for permanent care in the majority of cases.

Did space permit, it would be easy to give proofs of individual improvement resulting from these and similar homes (of which a list will be found in Appendix A); but for particulars the reader is referred to the Reports of the Homes, and to the publications on After-care of the National Association for the Feeble-minded, to be obtained at their offices, 72, Denison House, Vauxhall Bridge Road, S.W. As the result of the passing of the Mental Deficiency Act, it is to be hoped that all defectives over sixteen who are without proper provision, and are a source of danger to themselves or the community, will be kindly taken care of in such institutions as we have described.

Objection has sometimes been taken to the benevolent efforts of the last seventy or eighty years in favour of the mentally deficient, that they are antagonistic to Nature's law, expressed in the formula, "The survival of the fittest." We would submit, however, that the reclamation of these outcasts, and more especially the "setting of the solitary in families" (*i.e.*, in institutions and colonies), has not

necessarily been inconsistent with our duties towards posterity, for it has aroused a scientific interest in questions of heredity previously imperfectly understood. As Dr. Saleeby well puts it in his work on "Parenthood and Race Culture," "the ideal of eugenics is to abolish the brutal elements of the struggle for existence, whilst gaining its great end." Let us by all means adopt every reasonable measure to prevent the perpetuation of the evil, but in the meantime we are responsible for those weaklings we have allowed to be born as fellow-members of the human family. It is not denied that individual lives, which, if left to themselves, would probably be extinguished in the struggle for existence, are by fostering care prolonged, perhaps contrary to the rigid principles of social economy. It may, indeed, be admitted that much that has been done for the idiot and imbecile, and even for the feeble-minded, can only be justified on the ground of that quality of mercy which is "nobility's true badge," and "blesseth him that gives and him that takes." May we not indeed in this, as in much other philanthropic work which tends to soften the asperities of Nature's laws, endeavour humbly to follow in the footsteps of Him of whom it was foretold that "A bruised reed shall He not break, and the smoking flax shall He not quench"?

LATEAT SCINTILLULA FORSAN!

APPENDIX A

MENTAL DEFICIENCY ACTS, 1913.

(List kindly supplied by Board of Control, February, 1916.)

ENGLAND AND WALES.

Certified Institutions.

Figures indicate number admissible.

m., Males only; *f.*, Females only; *m.f.*, Males and Females.

BERKSHIRE.

f. CUMNOR RISE, CUMNOR—*Hon. Sec.*, Hon. Pamela Bruce. Radcliffe House, St. Giles, Oxford; *Supt.*, Miss Haigh. (22)

CHESHIRE.

m.f. SANDLEBRIDGE, ALDERLEY EDGE—*Hon. Sec.*, J. S. Walker, 54, Kenwood Road, Stretford, Manchester. *Supt.*, Miss Grace Wyatt. (275)

f. ASHTON HOUSE (SEASIDE LAUNDRY HOME), PARKGATE—*Hon. Sec.*, Miss J. M. Grayson, 29 Ullett Road, Liverpool; *Supt.*, Mrs. Dennis. (20)

CUMBERLAND.

m.f. DURRAN HILL HOUSE, CARLISLE—*Sec.*, T. W. Hunter, Archbishop's House, Victoria Street, London, S.W.; *Supt.*, Sister Ethelburga Ring. (65)

DERBY.

f. WHITTINGTON HALL (MIDLAND COUNTIES INSTITUTION), CHESTERFIELD—*Warden*, Rev. H. N. Burden, 14, Howick Place, Victoria Street, London, S.W.; *Supt.*, Miss Smith. (320)

m. HOPWELL HALL COLONY, NEAR DERBY—*Hon. Sec.*, Mrs. Kipping, 40, Magdala Road, Nottingham; *Supt.*, Mrs. H. Swinburne. (50)

DEVON.

m.f. WESTERN COUNTIES INSTITUTION, STARCROSS, NEAR EXETER—*Supt.* and *Sec.*, E. W. Locke. (336)

DURHAM.

m. MONKTON HALL HOME FOR LADS, MONKTON, JARROW-ON-TYNE—*Hon. Sec.*, Dr. Ethel Williams, 3, Osborne Terrace, Newcastle-upon-Tyne; *Supt.*, Mr. Piggott. (42)

ESSEX

m.f. ROYAL EASTERN COUNTIES INSTITUTION FOR IDIOTS, COLCHESTER—*Supt.*, F. Douglas Turner, M.B. *Sec.*, A. Turner. (512)

m. THURLBY HOUSE SCHOOL, WOODFORD BRIDGE—*Sec.*, T. W. Hunter, Archbishop's House, Westminster, London, S.W.; *Supt.*, Miss Mary Ryan. (40)

f. ETLOE HOUSE, CHURCH ROAD, LEYTON, N.E.—*Supt.*, Sister Susan O'Reilly. (122)

m. CO-OPERATIVE SANATORIUM (NEW LODGE, LEON HOUSE, THE HOMESTEAD AND ST. KEVERNE), BILLERICAY—*Sec.*, Thos. Wm. Edwards, New Lodge, Billericay; *Supt.*, T. W. Edwards. (56)

GLOUCESTER.

f. ST. MARY'S HOME, PAINSWICK, NEAR STROUD—*Hon. Sec.*, Miss Wemyss, Washwell House, Painswick; *Supt.*, Mrs. Oddy. (26)

m.f. STOKE PARK, BRISTOL (with ancillary premises), ROYAL VICTORIA HOME, HORFIELD, BRISTOL; CLEVEDON HALL, CLEVEDON; and BEECH HOUSE—*Warden*, Rev. H. N. Burden, 14, Howick Place, Victoria Street, London, S.W.; *Supt.*, Miss Gladys Williams. (940)

f. CHASEFIELD LAUNDRY HOME, 874, FISHPONDS ROAD, FISHPONDS, BRISTOL—*Hon. Secs.*, Miss Alice Mary Lavington and Miss Clara E. Sheppard, Stoberry Lodge, 18, Ashgrove Road, Redland, Bristol; *Supt.*, Miss Ada Brett. (38)

HAMPSHIRE.

f. ST. MARY'S HOME, ALTON (Wantage Sisters)—*Supt.*, Sister Rachel. (45)

HERTS.

m.f. ST. ELIZABETH'S HOME FOR EPILEPTICS, MUCH HADHAM—*Sec.*, T. W. Hunter, Archbishop's House, Westminster, S.W.; *Supt.*, Sister Mary Edmund. (136)

KENT.

m.f. PRINCESS CHRISTIAN'S FARM COLONY, HILDENBORO'—Part certified. Part approved. Applications to Miss Kirby, Secretary National Association for Feeble-minded, Denison House, Vauxhall Bridge Road, S.W.—*Supt.*, Miss E. J. Price. (102)

LANCASHIRE.

m.f. ROYAL ALBERT INSTITUTION, LANCASTER—*Supt.*, Dr. W. H. Coupland; *Sec.*, S. Keir. (750)

f. 45, WEBSTER STREET, GREENHEYS, MANCHESTER—*Hon. Sec.*, Miss A. H. Macalpine, 164, Denmark Road, Moss Side, Manchester; *Supt.*, Mrs. Collier. (16)

m.f. PONTVILLE SPECIAL SCHOOL, AUGHTON, ORMSKIRK—*Hon. Sec.*, Very Rev. W. Canon Pinnington, The Presbytery, Great Mersey Street, Liverpool; *Supt.*, Sister M. A. Driscoll. (113)

f. DOVECOT (HORTICULTURAL SCHOOL), KNOTTY ASH, LIVERPOOL—*Hon. Sec.*, Miss J. M. Grayson, 29, Ullett Road, Liverpool; *Supt.*, Miss F. C. Eyre. (55)

f. ADCOTE (LAUNDRY AND TRAINING HOME), PILCH LANE, KNOTTY ASH, LIVERPOOL—*Hon. Sec.*, Miss J. M. Grayson, 29, Ullett Road, Liverpool; *Supt.*, Miss L. Foster. (19)

f. BROCKHALL, LANGHO, NEAR BLACKBURN—*Clerk*, Lancashire Asylums Board, Sir Harcourt E. Clare; *Supt.*, Dr. F. Gill. (114)

LONDON.

f. 41, DOWNS ROAD, CLAPTON, N.E.—*Sec.*, Miss C. Tozer, 39, Downs Road, Clapton, N.E.; *Supt.*, Miss Main. (Girls over 16.) (25)

f. 46-48, PEMBURY ROAD, CLAPTON, N.E.—*Sec.*, Miss C. Tozer, 39, Downs Road, Clapton, N.E.—*Supt.*, Miss E. Allen. (Girls over 16.) (30)

f. 39, DOWNS ROAD, CLAPTON, N.E.—*Sec.*, Miss C. Tozer, 39, Downs Road, Clapton, N.E.—*Supt.*, Miss Aubery. (Girls over 8.) (25)

f. CLIFTON HOUSE, 127, UXBRIDGE ROAD, SHEPHERD'S BUSH, W.—*Sec.*, Miss Pierce, Church Army Rescue Homes; *Supt.*, Miss Margaret Fanny Pearne. (40)

f. SPRINGFIELD LODGE, GROVE HILL ROAD, DENMARK HILL, S.E.—*Sec.*, Miss J. A. Cox, Salvation Army Social Work, 280, Mare Street, N.E.; *Supt.*, Miss Annie Salt. (28)

MIDDLESEX.

f. CRATHORNE, OAK LANE, EAST FINCHLEY, N.—*Hon. Sec.*, Mrs. Moss-Blundell, 7, North Grove, Highgate, N.; *Supt.*, Mrs. Morfee. Including mothers and children. (32)

m. BRAMLEY HOUSE, GORDON HILL, ENFIELD.—*Clerk*, H. S. Freeman. (Middlesex County Council.) (44)

NORFOLK.

m. GUILTCROSS (EASTERN COUNTIES INSTITUTION), EAST HARLING.—*Warden*, Rev. H. N. Burden, 14, Howick Place, Victoria Street, London, S.W.—*Supt.*, Dr. Manning. (410)

OXFORD.

f. ST. PETER LE BAILEY RECTORY, NEW INN, HALL STREET, OXFORD (BRANCH OF CUMNOR RISE, CUMNOR).—*Sec.*, Hon. Pamela Bruce; *Supt.*, Miss Haigh. (24)

SOMERSET.

m.f. ROCK HALL HOUSE (MAGDALEN HOSPITAL SCHOOL), COMBE DOWN, BATH (Bath County Borough).—*Clerk*, Bath Municipal Charity Trustees, E. Newton Fuller, 1, Queen Square, Bath.—*Supt.*, Miss J. Quinton. (34)

SUFFOLK.

f. ST. JOSEPH'S HOME, THE CROFT, SUDBURY.—*Supt.*, Sister M. Murray. (15)

SURREY.

m.f. THE ROYAL EARLSWOOD INSTITUTION FOR MENTAL DEFECTIVES, REDHILL.—*Supt.*, C. Caldecott, M.B.—*Sec.*, Henry Howard, 15/16 Ludgate Hill, E.C. (600)

WARWICK.

m.f. MIDLAND COUNTIES INSTITUTION, KNOWLE, NEAR BIRMINGHAM.—*Sec.* and *Supt.*, H. Williams. (129)

f. AGATHA STACEY HOME, REDNAL, NEAR BIRMINGHAM (Birmingham County Borough).—*Financial Sec.*, Miss C. P. Fleetwood, 158, Broad Street, Birmingham; *Supt.*, Miss Smith. (35)

f. AGATHA STACEY HOME, ENNISKERRY, KNOWLE.—*Financial Sec.*, Miss C. P. Fleetwood, 158, Broad Street, Birmingham; *Supt.*, Miss Davis. (24)

Institutions Approved under Section 37. (Poor Law Cases.)

CHESHIRE.

m.f. CHESTER WORKHOUSE IMBECILE WARDS, HOOLE.—*Supts.*, Medical Officer and Master of Workhouse. (25)

ESSEX.

m.f. TENDRING UNION WORKHOUSE, TENDRING, HARWICH.—*Supt.*, Henry James Burden. (46)

HAMPSHIRE.

m. PARISH INFIRMARY BUILDINGS, SHIRLEY WARREN, SOUTHAMPTON (Southampton County Borough).—*Supt.*, J. C. Young, M.R.C.S., L.R.C.P. (54)

KENT.

m.f. CROYDON UNION WORKHOUSE.—*Supt.*, Dr. R. W. Wilson. (6)

LANCASHIRE.

m.f. SEAFIELD HOUSE, SEAFORTH, LIVERPOOL.—*Supt.*, S. J. Towill. (269)

NORTHUMBERLAND.

m.f. PRUDHOE HALL COLONY, and BURN HOUSE, PRUDHOE (Newcastle County Borough).—*Matron*, Miss N. M. Hawkes. (105)

STAFFORD.

m.f. GUARDIANS INSTITUTION, LONDON ROAD, STOKE-ON-TRENT (Stoke-on-Trent County Borough).—*Supt.*, C. Grayson. (20)

m.f. MENTAL WARDS, UNION WORKHOUSE, HEATH TOWN, WOLVERHAMPTON (Wolverhampton County Borough).—*Supt.*, T. D. Rollinson. (31)

m.f. WALSALL UNION POOR LAW INSTITUTION, PLECK ROAD, WALSALL (Walsall County Borough).—*Supts.*, W. J. Humphries and Mrs. Humphries. (12)

m.f. BURTON-ON-TRENT UNION WORKHOUSE.—*Supt.*, Robert Barcham. (20)

WILTS.

f. PEWSEY UNION WORKHOUSE.—*Supt.*, H. England. (4)

f. UNION WORKHOUSE, ST. JAMES, DEVIZES.—*Supt.*, W. Fear. (16)

m.f. CHIPPENHAM UNION WORKHOUSE.—*Supt.*, Jas. B. Pierce. (21)

f. TROWBRIDGE UNION WORKHOUSE.—*Supt.*, Chas. H. Taylor. (24)

WORCESTERSHIRE.

m.f. EVESHAM UNION WORKHOUSE INFIRMARY.—*Supt.*, J. H. Damen. (8)

m.f. MONYHULL COLONY, KING'S HEATH, BIRMINGHAM (Birmingham County Borough).—*Supt.*, Miss Carse. (100)

YORKSHIRE.

m.f. POOR-LAW INSTITUTION, 75, HARTINGTON ROAD, YORK.—*Supt.*, W. E. Jenner. (30)

Certified Houses. (Proprietary Homes for Private Cases, etc.)

* Houses thus marked for private cases only.

DERBYSHIRE.

**m.f.* RYDAL HOUSE, TENNYSON AVENUE, CHESTERFIELD.—*Supt.*, Miss Augusta Mole. (6)

LANCASHIRE.

f. LINWOOD AND YORK VILLA, CROMPTON ROAD, FORMBY, NEAR LIVERPOOL.—*Supt.*, Miss Ethel Hobday. (44)

m. LINTHAL, BARKFIELD AVENUE, FORMBY, NEAR LIVERPOOL.—*Supt.*, Miss K. Bowyer. (32)

MIDDLESEX.

**m.f.* FERNHURST, 8, MATTOCK LANE, EALING, W.—*Supt.*, Miss S. M. Macdowall. (19)

**m.f.* NORMANSFIELD, HAMPTON WICK, KINGSTON-ON-THAMES.—*Supts.*, R. L. Langdon-Down, M.B., and P. L. Langdon-Down, M.B. (140)

**m.f.* THE GABLES, UPPER TEDDINGTON ROAD, HAMPTON WICK, KINGSTON-ON-THAMES.—*Supt.*, Miss F. H. Deck. (18)

**m.f.* ARNISTON, THE GROVE, ISLEWORTH.—*Supts.*, Miss J. M. and Miss M. D. Isbister. (12)

SOMERSET.

**f.* DOWNSIDE LODGE, CHILCOMPTON, BATH.—*Supt.*, Miss C. E. Short. (7)

SUSSEX.

m.f. 12, UPPER MAZE HILL, ST. LEONARDS-ON-SEA.—*Supt.*, Mrs. J. Meiklejon. (38)

YORKSHIRE.

**f.* THE GRANGE, ALTOFTS, NORMANTON.—*Supt.*, Mrs. E. A. Howard. (15)

Approved Homes. (Training Schools for Uncertified Improvable Cases.)

* Homes thus marked are proprietary Training Schools for private patients.

CORNWALL.

f. ELIZABETH BARCLAY HOME OF INDUSTRY, BODMIN.—*Hon. Sec.*, Miss E. M. S. Shaw; *Supt.*, Miss Emily Hunt. (26)

DERBY.

f. MAGDALENE HOUSE, CROMWELL ROAD, CHESTERFIELD (Managed by Committee).—*Supt.*, Miss Root. (6)

DORSET.

f. KING'S GATE, AND FRITHSTOW, WEST MOORS.—*Manager*, Miss B. James, 10, Bolton Court, London, S.W.; *Supt.*, Miss A. H. Egan. (12)

ESSEX.

m. GAY BOWERS, WEST HANNINGFIELD, CHELMSFORD.—*Supts.*, P. Chennells and Mrs. G. Chennells. (7)

GLOUCESTERSHIRE.

f. MARY CARPENTER HOME, 598 AND 600, FISHPONDS ROAD, BRISTOL, and BRANCH HOME AT WESTRA, YATE (Bristol County Borough and Gloucester County Council).—*Hon. Sec.*, Mrs. Gilmore Barnett; *Supt.*, Miss Edwards; 18 female defectives at Fishponds Home and 7 at Branch Home, Westra, Yate. (25)

f. ROYAL FORT HOME, BRISTOL (Bristol Preventive Mission).—*Supt.*, Miss Blanche Whiteaway. (15)

**m.f.* SOUTHEND HOUSE SCHOOL, PITVILLE, CHELTENHAM.—*Supt.*, Miss A. King-Turner. (16)

KENT.

m. UPPER HOLLANDEN FARM, PRINCESS CHRISTIAN FARM COLONY, HILDENBORO' (Application to Miss Kirby, *Sec.*, N.A.F.M., Denison House, Vauxhall Bridge Road, S.W.)—*Supt.*, Miss E. J. Price. (*See also Certified Institutions.*) (8)

LEICESTER.

f. SUNNYHOLME, 155, KING RICHARD'S ROAD (Leicester County Borough, managed by After-Care Committee).—*Hon. Sec.*, Miss A. E. Clephan, 110, Regents Road, Leicester.—*Supt.*, Miss Gertrude Annie Ladkin. (12)

MIDDLESEX.

f. ALEXANDER HOUSE, 117, HIGH STREET, UXBRIDGE (Application to Miss Kirby, *Sec.*, N.A.F.M., Denison House, Vauxhall Bridge Road, S.W.)—*Supt.*, Miss Ellen Collyer. (24)

**m.f.* BROOK HOUSE, SOUTHGATE, N.—*Supt.*, Dr. H. Corner. (37)

**m.f.* ST. CHRISTOPHER'S (SCHOOL), AMHERST ROAD, EALING, W.—*Supt.*, Miss M. C. B. Foster. (22)

**m.f.* CONIFERS, KINGSTON ROAD, HAMPTON WICK.—*Supt.*, Miss Florence Eddolls. (Drs. Langdon-Down.) (10)

**m.* TREMATON, BROOM ROAD, HAMPTON WICK.—*Supt.*, Miss A. G. Mackay. (Drs. Langdon-Down.) (12)

NORTHUMBERLAND.

f. HOME OF INDUSTRY, BOW VILLA, MORPETH (Managed by Committee).—*Supt.*, Miss A. A. Pawsey. (16)

SOMERSET.

f. HOUSE OF HELP FOR WOMEN AND GIRLS, 112, WALCOT STREET, BATH (Bath County Borough).—*Sec.*, Miss Twiss; *Supt.*, Miss Alice Lilian Walker. (50)

SUSSEX.

(Mrs. Meiklejon's Homes.)

**m.f.* BROOKLANDS, 23, UPPER MAZE HILL, ST. LEONARDS-ON-SEA.—*Supt.*, Miss A. Lavers. (10)

**f.* TIPPERARY, 22, UPPER MAZE HILL, ST. LEONARDS-ON-SEA. —*Supt.*, Miss A. Lavers. (35)

SUFFOLK.

f. HANDFORD HOME FOR FEEBLE-MINDED GIRLS, RANELAGH ROAD, IPSWICH.—*Hon. Sec.*, Mrs. Alan Turner, Crane Hall, Ipswich; *Supt.*, Miss Florence Church. (20)

YORKSHIRE (N.R.).

**m.f.* THE MOUNT, WHITBY.—*Supt.*, Mrs. Annie E. Priestly. (12)

FLINTSHIRE.

m.f. "WALMER" SCHOOL FOR BLIND AND DEAF, RHYL. —*Supt.*, Mrs. Elizabeth Roberts. (13)

(List kindly furnished by Clerk, June, 1915.)

METROPOLITAN ASYLUMS BOARD.

INSTITUTIONS FOR IMBECILES AND FEEBLE-MINDED, ETC.

(*From London Parishes.*)

	Accommodation.		
	Males.	Females.	Total.
Asylums for unimprovable imbeciles (certified):			
Leavesden	1,007	1,188	2,195
Caterham	1,017	1,092	2,109
Tooting Bec:			
(1) Asylum*	486	576	1,062
(2) Receiving-home for children	28	24	52
Fountain (temporary)	363	303	666
Industrial Colonies for improvable imbeciles (certified) and for feeble-minded (uncertified):			
Darenth:			
Improvable imbeciles	884	784	1,668
Feeble-minded	320	310	630
Bridge:			
Feeble-minded	210	—	200
	4,315	4,277	8,592

* This asylum is now being extended. When finished, it will contain 942 male, 1,226 female, and 52 beds for children—Total, 2,220.

(List kindly supplied by General Board of Control, Scotland, 1915.)

SCOTLAND.

CERTIFIED INSTITUTIONS.

Name of Institution.	Licensed for—				Class of Defectives to be Accommodated.
	Private.		Aided.		
	M.	F.	M.	F.	
BALDOVAN, near Dundee. *Med. Supt.*, Dr. W. B. Drummond			260		Imbecile and mentally defective children
GRIERSON HALL, Dumfries			50	50	Private and aided defectives over 16
LARBERT, Stirlingshire. *Med. Supt.*, Dr. R. D. Clarkson			350		Imbecile and mentally defective children
MIDDLETON HALL, Lanlithgowshire			65		Males of Edinburgh parish
QUARRIER'S HOMES, Bridge of Weir, Renfrewshire	68 m.		44 f.		Epileptics of school age, Protestants
STONEYETTS, Chryston, near Glasgow			174	171	Adults and ineducable juveniles of Glasgow parish
WAVERLEY PARK, Kirkintilloch, nr. Glasgow				90	Educable girls between 5 and 16 years

IRELAND.

(Not included under Mental Deficiency Acts.)

STEWART INSTITUTION FOR IDIOTIC AND IMBECILE CHILDREN, Palmerston House, Chapelizod, Co. Dublin.—110 boys and girls. *Med. Supt.*, Dr. Rainsford; *Sec.*, W. M'c. O'Neill.

BRITISH DOMINIONS.

Canada : Orillia, ONTARIO HOSPITAL FOR FEEBLE-MINDED (800). *Med. Supt.*, Dr. A. M. Beaton.

Australia : KEW ASYLUM ANNEXE FOR IDIOTS, near Melbourne; ADELAIDE INSTITUTION, S. Australia.

New Zealand : STATE INSTITUTION FOR MENTALLY DEFECTIVE BOYS, Otckaike, Oamaru.

South Africa : DEPARTMENT FOR DEFECTIVE CHILDREN: GRAHAMSTOWN ASYLUM.

APPENDIX B

UNITED STATES OF AMERICA: STATE PUBLIC INSTITUTIONS FOR FEEBLE-MINDED.

(List kindly supplied by Dr. Martin Barr, 1914.)

Post Office.	*Name.*	*Executive Officer.* (1914).	*Census, Dec., 1908.*
California, Eldridge	California Home for the Care and Training of Feeble-minded Children	Wm. J. G. Dawson, M.D.	749 (954)*
Conn., Lakeville	Connecticut School for Imbeciles	C. T. E. La Moure, M.D.	302 (295)
Ill., Lincoln	Illinois Asylum for Feeble-minded Children	T. H. Leonard, M.D.	1,294 (1,464)
Ind., Fort Wayne	Indiana School for Feeble-minded Youth	G. E. Bliss, M.D.	1,118 (1,251)
Iowa, Glenwood	Iowa Institution for Feeble-minded Children	Geo. Mogridge, M.D.	1,178 (1,350)
Kansas, Winfield	Kansas State School for Feeble-minded Youth	F. C. Cave, M.D.	387 (462)
Ky., Frankfort	Kentucky Institution for Feeble-minded Children	H. C. Kehoe, M.D.	186 (300)
Md., Owings Mills	Maryland Asylum and Training School for Feeble-minded	Frank W. Keating, M.D.	226 (506)
Mass., Waverley	Massachusetts School for the Feeble-minded	W. E. Fernald, M.D.	1,320 (1,429)
Mass., Wrentham	Wrentham State School	Geo. L. Wallace, M.D.	49 (287)
Mich., Lapeer	Michigan Home for the Feeble-minded and Epileptic	H. A. Haynes, M.D.	816 (1,002)
Minn., Faribault	Minnesota School for Feeble-minded and Colony for Epileptics	A. C. Rogers, M.D.	1,115 (1,500)
Mo., Marshall	Missouri Colony for the Feeble-minded and Epileptic	Horace R. Quigg, M.D.	421 (448)
Mont., Boulder	School for Backward Children (a department of the Montana School for Deaf and Blind)	H. J. Menzemer	54 (54)

Nebraska, Beatrice	Nebraska Institution for Feeble-minded Youth	W. S. Fast, M.D.	432 (451)
N. Dakota, Grafton	North Dakota Institution for Feeble-minded	A. R. T. Wylie, M.D.	132 (163)
N. H., Laconia	New Hampshire School for Feeble-minded Children	B. W. Baker, M.D.	91 (108)
N. J., Vineland	New Jersey Training School for Feeble-minded Children	E. R. Johnstone	371 (401)
N. J., Vineland	New Jersey Institution for Feeble-minded Women	Madeline A. Hallowell, M.D.	189 (226)
N. Y., Newark	State Custodial Asylum for Feeble-minded Women	Ethan A. Nevin / A. Warnecke, M.D.	736 (795)
N. Y., Randall's Island	New York School for Feeble-minded. (Supported by City of N. Y.)	Mrs. M. C. Dunphy	921 (1,590)
N. Y., Rome	Rome State Custodial Asylum	Charles Bernstein, M.D.	1,000 (1,085)
N. Y., Syracuse	Syracuse State Institution for Feeble-minded Children	Dr. O. H. Cobb	555 (553)
Ohio, Columbus	Institution for Feeble-minded	E. J. Emerick, M.D.	1,485 (1,684)
Pa., Elwyn	Pennsylvania Training School for Feeble-minded Children	M. W. Barr, M.D.	1,076 (1,074)
Pa., Polk	Western Pa. State Institution for Feeble-minded Youth	J. M. Murdoch, M.D.	1,300 (1,620)
Pa., Spring City	State Institution for Feeble-minded and Epileptics	G. Potter Ard, M.D.	350 (359)
R. I., Slocums	Rhode Island School for Feeble-minded	Joseph H. Ladd, M.D.	8 (50)
S. Dakota, Redfield	Northern Hospital for Insane (Feeble-minded)	J. K. Kutnewsky, M.D.	150 (174)
Wash., Medical Lake	State Institution for Feeble-minded	Dr. S. C. Woodruff	164 (160)
Wis., Chippewa Falls	Wisconsin Home for Feeble-minded	A. W. Wilmarth, M.D.	1,050 (990)

* Bracketed numbers are taken from *The Survey*, March, 1912, which includes also the following new State Institutions: Colorado (50); Kansas, Parsons (456); Maine (230); Mass. Palmer (858); N. J., Skillman (370); N. Y., Letchworth Village (1,500); Ohio, Gallipolis (1,477); Texas (385); W. Virginia (157). Additional beds have been provided since date of Report.

PRIVATE INSTITUTIONS FOR THE FEEBLE-MINDED.

Post Office.	*Name.*	*Executive Officer.*	*Census, Dec., 1908.*
California, Los Angeles	Miss Allen's Private School for Nervous and Backward Children	Miss E. Maud Allen	—
Ill., Godfrey	" Beverly Farm "	W. H. C. Smith, M.D.	56
Ill., Wheaton		Miss Perry J. Stryker	—
Iowa, Red Oak	The Powell School	Dr. Velura Powell	50
Ky., Farmdale	" The Stewart Home "	J. P. Stewart, M.D.	100
Md., Ellicott City	The Font Hill Private Institution for Feeble-minded and Epileptic Children	Samuel J. Fort, M.D.	22
Mass., Barre	Private Institution for the Education of Feeble-minded Youth. " Elm Hill "	George A. Brown, M.D.	75
Mass., Amherst	Home School for Nervous and Delicate Children and Youth	Mrs. W. D. Herrick	11
Mass., Newton, 16 Summit St.	School for Highest Grade Mentally Deficient	Miss Alice Shovelton	14
Mass., Fayville	" The Hillside School "	Mrs. M. A. F. Dana Green	—
Mich., Detroit, 387 Hubbard Av.	" The Reed School "	Mrs. Frank A. Reed	15
Mich., Kalamazoo	Nazareth School for Feeble-minded	Sisters (Catholic) E.P., J.W.	—
Mich., Kalamazoo	Wilbur School and Home for Feeble-minded	C. T. Wilbur, M.D.	29
Minn., Northfield	Miss Baker's Private School for Backward and Nervous Children	Miss Laura Baker	28
Mo., Marthasville	School for Feeble-minded and Epileptic	Rev. C. F. Sturm	80
Mo., St. Charles	Emmaus Asylum for Epileptic and Feeble-minded	Rev. J. W. Frankenfeld	30

Mo., St. Louis, 3809 Flad Av.	Compton School for Children of Retarded Mentality	Miss Fanny Compton	10
N. J., Cranberry	Private Home and School for the Feeble in mind	Elise Gordon	15
N. J., East Orange, 549 Springdale Av.	School for Backward and Delicate Boys	A. N. Williamson, M.D.	5
N. J., Haddonfield, Box 119	Bancroft Training School	E. A. Farrington, M.D.	47
N. J., Plainfield, "Watchung Crest"	"The Groszman School"	M. P. E. Groszman, M.D.	20
N. J., Orange	Seguin Physiological School for Children of Arrested Mental or Physical Development	Mrs. Elsie Seguin	24
N. Y., Amityville	"Brunswick Home School"	John E. Ireland	201
N. Y., Binghamton, 82 Fairview Avenue	The Binghamton Training School for Nervous, Backward, and Deaf-Mute Children	Miss Sophia A. Doolittle	16
N. Y., Newburgh, R.F.D. 4	"Sycamore Farm Training School"	N. R. Brewster	7
N.Y., Saratoga Springs	The Copeland School for Special Training of Nervous and Backward Children	Miss Susan E. Copeland	—
Pa., Bala	Miss McGrew's School for Boys of High Grade Defective Mentality	Miss Anna L. McGrew	10
Pa., Manoa	"The Haystack"	Miss Mary E. Marvin	—
Texas, Austin	The Texas School for Imbeciles and Defectives	Mrs. E. M. Barrett	—
Va., Falls Church	The Virginian Training School for the Feeble-minded	Miss Mattie Gundry	53
Va., Middleburgh	Middleburgh Home for Incurables	Miss Katherine Dudley & Miss Mary Taylor	—
Wis., Milwaukee, 1380 Humboldt Av.	Ev. Lutheran School for Feeble-minded and Epileptic	W. L. Weissbrodt	—
Wis., Jefferson	St. Coletta's School	Sisters of St. Francis	44

APPENDIX C

SPEAKING EXERCISES.

I. CONSONANTS.

Sound.	Phonetic.	Common Object.	Part of Body, etc.	Part of Dress, etc.
M.	Mam-ma	Mat, Man, Miss	Mouth, Muscle	Muff, Muffler, Mitten
P.	Pa-pa	Pen, Pin, Pipe	Palm (of hand)	Pin, Pocket
B.	Bab-ba	Bell, Box, Book	Bone, Bust, Brains	Bib, Bow
T.	Tat-ta	Table, Top, Tea	Toe, Tooth	Tie, Tape, Trousers
D.	Dad-da	Door, Doll, Desk	Dimple	Dress, Diadem
V.	Va-va	Velvet, View, Violet	Vein, Voice	Veil, Vest
F.	Fa-fa	Fan, Fire, Fish	Foot, Face, Finger	Fur, Frock, Flannel
L.	La-la	Lad, Lady, Lock	Lip, Limb, Leg	Lace, (E)lastic
R.	Ra-ree	Rag, Reel, Rail-road	Rib, (W)rist	Ribbon, Ring
S.	See-saw	Soap, Slate, Seat	Sole, Skin	Sock, Sash, Stocking
Z.	Za-zel	Zinc, Scissors	Hazel (Eyes)	Stays, Zone
Th.	The	Thimble, Thing	Thumb, Throat	Thread
Sh.	She	Shell, Shilling	Shoulders, Shin	Shoe, Shawl, Shirt
Ch.	Chick	Child, Chair	Chin, Chest, Cheek	Chain (of Watch)
J.	Jig	Ju-jube, Jug	Jaw, Joint	Jacket, Jewel
G, (hard)	Gig	Girl, Gas, Gate	Gum, Gullet	Garter, Gaiter
K.	Cake	Cat, Kite, Colour	Calf, Cough	Coat, Cap, Collar
N.	Nanny	Net, Nut, (K)not	Nose, Nail, Neck	Necktie, (K)not

II. SIMPLE VOWEL SOUNDS.

Vowel Sound.	Examples.
A (open) =(Ah)	Father
A (broad) =(Aw)	All (*Aw*ful)
A (short) =Ă	Cap, Tap
A (long) =Ā	Cape, Tape
O (short) =Ŏ	Cot, Knot
O (long) =Ō	Coat, Note
o͝o (short) =(o͝o)	Foot, Wood
o͞o (long) =(o͞o)	Boot, Food
U (short) =Ŭ	Tun, Fun
U (long) =Ū	Tune, Fume
E (short) =Ĕ	Bed, Fed
E (long) =Ē	Bead, Feed
I (short =Ĭ	Bit, Fit
I (long) =Ī	Bite, Fight
Aspirate H	Hat, Hall
Double Letters W, Y	Wall, You
Diphthongs, o͡i, o͡w	Oil, Owl

[Arranged by Dr. Shuttleworth for use at Royal Albert Asylum. Reprinted from his article on "Education of Imbeciles" in Dr. Hack Tuke's "Dictionary of Psychological Medicine," by kind permission of Messrs. Churchill.]

The following phonetic phrases (from Dr. Wyllie's book) are serviceable for speech testing:—

1. (*Labials*) "Peter Brown made white wax."
2. (*Labio-dentals*) "Fine villages."
3. (*Linguo-dentals*) "Thinkest thou so, Zealot?"
4. (*Anterior linguo-palatals*) "She leisurely took down nine large roses."
5. (*Posterior linguo-palatals*) "Can Gilbert bring Loch Hourn youths?"

ELDER BOYS

(Staff: 1 Head Master, 4 Assistant Master

	Class No.	9.30 to 9.40.	9.40 to 10.0.	10.0 to 10.35.	10.35 to 10.55.	10.55 to 11.10.	11.10 to 11.20.	11.20 to 11.40.	11.40 to 12.0.
MONDAY	1	Assembly, Registration, and Prayers	Scripture	Arithmc.	Readg.	Physical Exercises	Recreation	Recitation	Writing
	2		,,	,,	,,			,,	,,
	3		,,	,,	,,			,,	,,
	4		,,	Hand	work			Wood	work
	*a		Woodwork	Wood	work			Boot	making
	b		Bootmaking	Boot	making			Tailor	ing
	c		Tailoring	Tailor	ing				
TUESDAY	1		Hymns	Arithmc.	Readg.	Physical Exercises	Recreation	Oral Comp.	Writing
	2		,,	,,	,,			,,	,,
	3		Scripture	,,	,,			,,	,,
	4		,,	Hand	work			Wood	work
	a		Woodwork	Wood	work			Boot	making
	b		Bootmaking	Boot	making			Tailor	ing
	c		Tailoring	Tailor	ing				
WEDNESDAY	1		Scripture	Basket	work	Physical Exercises	Recreation	Basket	work
	2		,,	Arithmc.	Readg.			Recitation	Geography
	3		,,	,,	,,			,,	,,
	4		,,	,,	,,			,,	,,
	a		Woodwork	Wood	work			Wood	work
	b		Bootmaking	Boot	making			Boot	making
	c		Tailoring	Tailor	ing			Tailor	ing
THURSDAY	1		Scripture	Arithmc.	Readg.	Physical Exercises	Recreation	Word buildg	Geography
	2		,,	,,	,,			,,	,,
	3		Hymns	Hand	work			,,	Object Les
	4		,,	Arithmc.	Readg.			,,	,,
	a		Woodwork	Wood	work			Wood	work
	b		Bootmaking	Boot	making			Boot	making
	c		Tailoring	Tailor	ing			Tailor	ing
FRIDAY	1		Scripture	Arithmc.	Readg.	Physical Exercises	Recreation	Oral Comp.	Dictation
	2		,,	,,	,,			,,	,,
	3		,,	,,	,,			,,	,,
	4		,,	Hand	work			,,	,,
	a		Woodwork	Wood	work			Wood	work
	b		Bootmaking	Boot	making			Boot	making
	c		Tailoring	Tailor	ing			Tailor	ing

* Classes a, b, c, are section

DEPARTMENT.

3 Manual Instructors; Accommodation 126.)

1.30 to 1.35.	1.35 to 2.10.	2.10 to 2.35.	2.35 to 3.5.	3.5 to 3.20.	3.20 to 3.55.	3.55 to 4.0.
Assembly and Registration	Arithmetic ,, Handwork Arithmetic Woodwork Bootmaking Tailoring	Reading ,, Handwork Reading Woodwork Bootmaking Tailoring	Drawing (pattern) ,, ,, Handwork Drawing (colour) Woodwork Bootmaking Tailoring	Recreation	Singing ,, Geography ,, Woodwork Bootmaking Tailoring	Prayers and Dismissal
	Arithmetic ,, Handwork Arithmetic Woodwork Bootmaking Tailoring	Reading ,, Handwork Reading Woodwork Bootmaking Tailoring	Phys. Ex. & Games ,, Singing ,, Woodwork Bootmaking Tailoring	Recreation	History ,, ,, ,, Woodwork Bootmaking Tailoring	
	Arithmetic Basketwork Arithmetic ,, Woodwork Bootmaking Tailoring	Reading Basketwork Reading ,, Woodwork Bootmaking Tailoring	Drawing (woodwk.) Woodwork Drawing (colour) ,, (pattern) Woodwork Bootmaking Tailoring	Recreation	Singing ,, Story-telling Woodwork Bootmaking Tailoring	
	Arithmetic ,, ,, Handwork Woodwork Bootmaking Tailoring	Reading ,, ,, Handwork Woodwork Bootmaking Tailoring	Drawing (colour) ,, ,, ,, (pattern) Handwork Woodwork Bootmaking Tailoring	Recreation	Story-telling ,, Singing ,, Woodwork Bootmaking Tailoring	
	Arithmetic ,, ,, ,, Woodwork Bootmaking Tailoring	Reading ,, ,, ,, Woodwork Bootmaking Tailoring	Drawing ,, (memory) Phys. Ex. & Games ,, Woodwork Bootmaking Tailoring	Recreation	Object Lesson ,, ,, ,, Woodwork Bootmaking Tailoring	

Classes 1, 2, 3, 4, taken in rota.

APPENDIX E

MENTAL DEFICIENCY ACT, 1913, S. 3, 5, ETC.

[Form P4.]

MEDICAL CERTIFICATE.

In the matter of A.B. , of , in the County(*) of , an alleged defective.

I, the undersigned, K.L. , do hereby certify as follows:

1. I am a person registered under the Medical Acts and I am in the actual practice of the medical profession [and approved by the Local Authority for the County (*) of *or* by the Board of Control, for the purpose of giving medical certificates under the above Act] [and the usual medical attendant of the said A.B.]

2. On the day of , (†) at , in the County (*) of , separately from any other practitioner, I personally examined the said A.B. and satisfied myself that he was .(‡)

3. I formed this conclusion on the following grounds, viz.:
(*a*) Facts observed by myself—
(i.) at the time of examination;
(ii.) previously to examination.(§)
(*b*) Facts communicated by others.

4. The said A.B. appeared to me to be [*or* not to be] in a fit condition of bodily health to be removed.

Dated .

Signed .
(‖)

---

* *Or* County Borough.

† The examination must have taken place not more than seven clear days before the date of the presentation of the petition or admission of patient.

‡ State whether an idiot, an imbecile, a feeble-minded person, or a moral imbecile. If the defective be certified otherwise than as an *idiot* or *imbecile*, the sanction of a judicial authority is also required (S. 3).

§ Give date when observed.

‖ Insert postal address.

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